DOCUMENT RESUME

ED 148 233 HE 009 494

AUTHOR	Cohen, Alan J.; And Others
TITLE	Cooperative Education--A National Assessment. Final Report. Volume II. Covering Period of Performance During July, 1975-November, 1977.
INSTITUTION	Applied Management Sciences, Inc., Silver Spring, Md.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Office of Planning, Budgeting, and Evaluation.
PUB DATE	77
CONTRACT	300-75-0343
NOTE	178p.; For related documents, see HE 009 493-497
EDRS PRICE	MF-$0.83 HC-$10.03 Plus Postage.
DESCRIPTORS	*Career Education; Career Planning; College Students; *Cooperative Education; *Educational Assessment; *Federal Aid; Higher Education; Job Placement; *Manpower Utilization; Post Secondary Education; Student Characteristics; Student Employment
IDENTIFIERS	Higher Education Act Title IV D

ABSTRACT

In this volume are discussed: (1) an assessment of the national potential for expansion of cooperative education (employer utilization of undergraduate student manpower, student participation in cooperative education, expansion in higher education institutions, and employer use of graduate manpower); (2) an assessment of the effectiveness of federal funding (the use and impact of funds from Title IV-D of the Education Amendments of 1968; and (3) an assessment of the role of cooperative education in career education, including career preparation, guidance and counseling, student characteristics, and placement. The analysis covers the period of July 1975 through November 1977. (MSE)

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COOPERATIVE EDUCATION - A NATIONAL ASSESSMENT

Final Report, Volume II

Covers Period of Performance
During
July, 1975 - November, 1977

Contract No. OE-300-75-0343

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HE009494

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EDUCATION & WELFARE
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ACKNOWLEDGEMENTS

The authors of this report would like to gratefully acknowledge the contributions made by a wide variety of people who contributed their time and ideas to this study. This assistance was especially useful early in the study when the design was conceptualized and later when drafts of the reports were critiqued.

Special thanks must go to Ann Hershner, the OPBE Project Officer, who played a daily role in the project for more than two years. Additional thanks should also go to other OPBE staff members who have contributed to the project since its inception, particularly Dr. Salvatore Corrallo (Director of the Postsecondary Education Programs Division), Dr. John Haines, and Dr. Peter Kuch.

Dr. James Wilson, Asa Knowles Research Professor at Northeastern University, provided particularly useful input at various points in the study and also opened many doors for use in the cooperative education community. Syliva Brown of Northeastern University also provided us with valuable assistance.

Personnel in the Cooperative Education Branch of the Bureau of Postsecondary Education were highly cooperative, providing us with access to their records and with needed information whenever either was requested of them. This assistance was rendered by Dr. John Chase, Dr. Sinclair Jeter, and Lee Frederick.

Other USOE staff members who provided us with guidance and assistance included William Hubbard and R. Sandy Pemberton of the Planning Staff of the Bureau of Higher Education and Manuel Smith of the Office of the Assistant Secretary for Planning and Evaluation.

William Weisel of Cincinnati Milacron Corporation, who operates that firm's co-op program, also provided us with valuable information and assistance.

Finally, acknowledgement is made for the contributions of Dr. Todd Tucker and Douglas Skinner of Applied Management Sciences, Inc., who actively participated in more than 100 project meetings and provided internal reviews of all of the study's products.

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3

ASSESSMENT OF THE NATIONAL POTENTIAL FOR EXPANSION OF COOPERATIVE EDUCATION

This part of the study will assess the potential for expansion of cooperative education programs. Both the potential for expansion at the present time, and factors which may either aid or hamper the future expansion of cooperative education, will be investigated.

The national potential for the expansion of cooperative education must be viewed in terms of the three major participants in co-op: the students, the educational institutions, the employers; and in terms of the potential influence of the government. Since the participants are not isolated entities, it is essential to examine their interactions and how the decisions of one participant affects those of the others. Since their actions are interdependent, the extent of co-op expansion can be affected by the behavior of any of the participants.

Conceptual Framework

The conceptual framework which is presented below provides an overview of the cooperative education system. It is based on the interdependence of the participants in the cooperative education system. This framework will be utilized to relate the many and diversified components of cooperative education to each other in an organized, comprehensive manner.

The conceptual framework outlined below in Figure 3.1 provides a mechanism for systematically organizing the large number of complex factors which may have an effect on the expansion of cooperative education. The framework is composed of the following

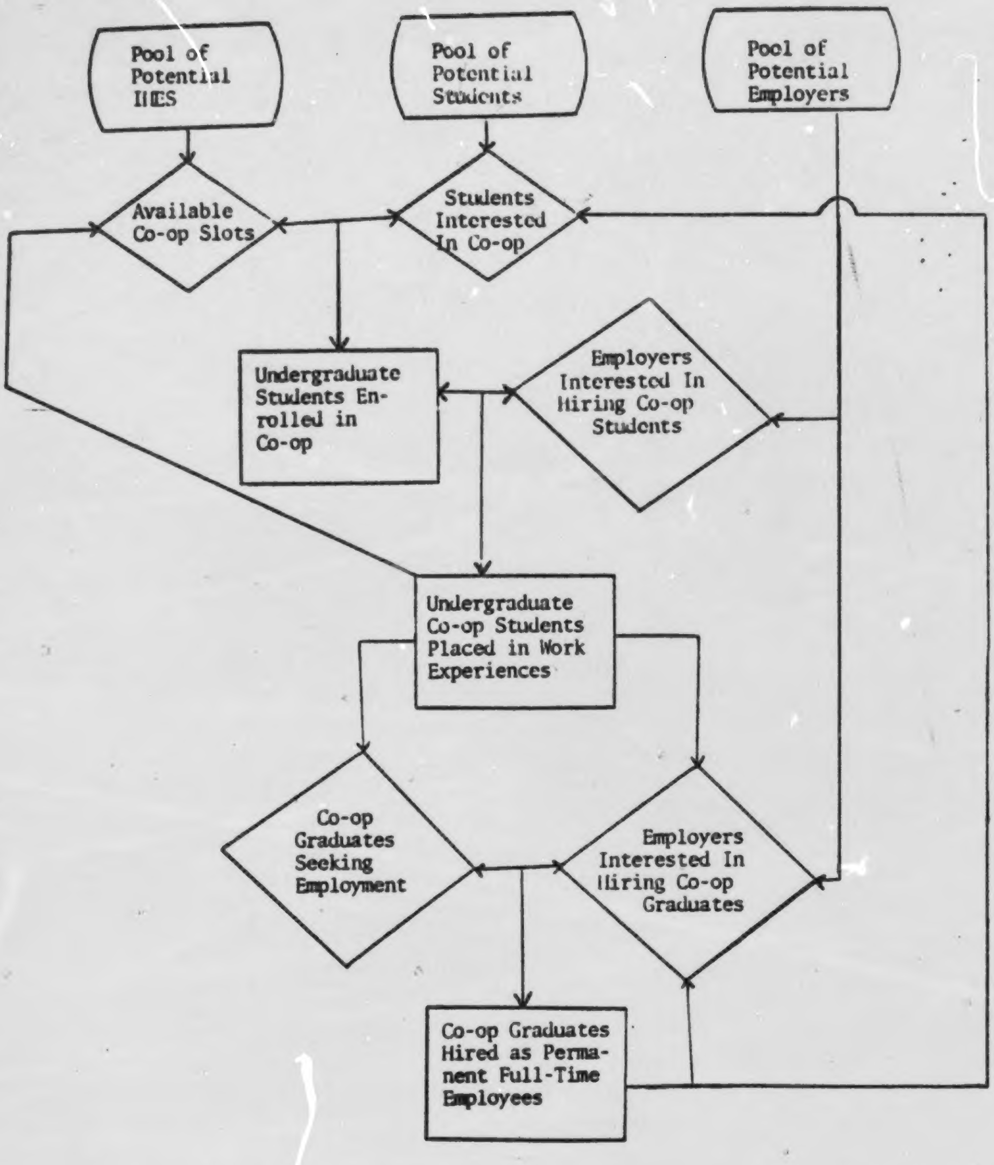
Pool of Potential IHES
Pool of Potential Students
Pool of Potential Employers
Available Co-op Slots
Students Interested In Co-op
Undergraduate Students Enrolled in Co-op
Employers Interested In Hiring Co-op Students
Undergraduate Co-op Students Placed in Work Experiences
Co-op Graduates Seeking Employment
Employers Interested In Hiring Co-op Graduates
Co-op Graduates Hired as Permanent Full-Time Employees

FIGURE 3.1: OVERVIEW OF THE COOPERATIVE EDUCATION SYSTEM

components: the undergraduate co-op student enrollment, the undergraduate co-op students who are placed in co-op work experiences, and the co-op graduates who are hired as permanent, full-time employees. The participants in each of these three segments composing the conceptual framework are the students, institutions of higher education, and employers.

The participants in co-op interact to determine the availability of undergraduate co-op student manpower, employable co-op graduates, and the extent to which that manpower will be utilized.

Although these three segments of the framework will be examined individually, they are interdependent. The pool of potential institutions determines the number of co-op slots available. From the pool of potential students comes students who are interested in participating in co-op. These two groups interact to determine the number of undergraduate students enrolled in co-op.

From the pool of potential employers comes a subset who are willing to participate in co-op and hire undergraduate co-op students. These employers, who make co-op work experience placement positions available, interact with the undergraduate co-op student enrollment to determine the number of undergraduate co-op students who are placed in co-op work experiences.

After these students graduate, a portion proceed to further education and training, and the remainder seek permanent, full-time employment. It is those who enter the job market seeking permanent, full-time employment that we are concerned with in this conceptual framework. These co-op graduates who are seeking permanent, full-time employment interact with employers interested in hiring co-op graduates. This interaction generates a group of co-op graduates occupying full-time, permanent employee positions.

The government can provide incentives which could affect the interest in participating in co-op among the potential IHEs, students, and employers. The current incentives provided by the Federal government in its Title IV-D program are directed at institutions of higher education. However, they potentially could be aimed at students and/or employers as well.

The previously outlined interactions reveal the interdependence between the participants in the cooperative education system. However, there are also other, more complex interactions which also take place. Students may react to both the number of co-op work experience positions made available by employers and the employability of co-op graduates when evaluating whether or not they will participate in co-op. Institutions react to the availability of co-op work experience placement positions as well as the level of student interest in co-op when determining the number of co-op slots they will make available. Also, employers evaluate the relative productivity of both undergraduate co-op students and co-op graduates as opposed to regular employees when determining the extent of their participation in co-op. These interactions further show the interdependent nature of the behaviors of the participants in the cooperative education system.

Outline of the Substudy

The analysis of this chapter is organized as follows:

Section I.	Analysis of the National Potential for Expansion of Co-op in Terms of Employer Utilization of Undergraduate Co-op Student Manpower
Section II.	Analysis of the National Potential for Expansion of Student Participation in Co-op
Section III.	Analysis of the National Potential for Expansion of Co-op in Institutions of Higher Education

Section IV. Analysis of the National Potential for Expansion of Employer Utilization of Co-op Graduate Manpower

Section V. Summary

In Section I, employer utilization of co-op student manpower is analyzed. The current level of employer utilization of co-op student manpower is assessed, and the factors which may promote or hamper future employer utilization of co-op student manpower are examined. These factors are analyzed with respect to employers currently hiring co-op students and those which do not.

In Section II, the level of and potential for co-op student participation is reviewed in terms of the reasons why students decide to participate in co-op and the types of students most likely to participate in co-op. Also, the reasons why non-co-op students have chosen not to participate are explored in order to identify potential obstacles to expansion of student participation in co-op.

In Section III of the analysis the availability of co-op educational services is assessed from the perspective of the institution. The current level to which co-op educational services are provided is examined. Also, factors promoting and hampering the future expansion of co-op in institutions of higher education are explored. This will enable the identification of areas where co-op services can be expanded with greatest ease. An analysis is also made to determine if future co-op enrollment can be predicted based on institutional and programmatic variables.

Section IV of the chapter assesses the employer utilization of co-op graduate manpower. Data from employers is utilized to compare the productivity of permanent co-op employees with that of regular employees in similar jobs and to determine the degree of importance assigned to previous participation in co-op by employers in a hiring decision. Based on employers' evaluations of co-op graduates and their past co-op experience, the future prospects for employer utilization of co-op graduate manpower is explored.

Chapter 3 is summarized in Section V where the potential for co-op expansion is discussed from the perspective of three participants in co-op; students, institutions, and employers.

I. ANALYSIS OF THE NATIONAL POTENTIAL FOR EXPANSION OF CO-OP IN TERMS OF EMPLOYER UTILIZATION OF UNDERGRADUATE CO-OP STUDENT MANPOWER

This section of the analysis concentrates on the employers' utilization of co-op student manpower. The frame of reference is the undergraduate co-op student and the extent to which he/she is utilized by employers as a source of manpower, since this could exert a limiting influence on the national potential for expansion of cooperative education. In order to assess this potential, employers who currently hire undergraduate co-op students were asked about their intentions to increase their utilization of co-op student manpower by increasing employment. Also, employers who do not currently utilize undergraduate co-op students were surveyed to determine whether they intend to utilize co-op student manpower in the future.

A. Indicators of Increased Employer Utilization of Undergraduate Co-op Student Manpower

There are two primary sets of indicators of activity in the co-op student manpower market. The first is the degree to which employers currently utilizing undergraduate co-op student manpower express a willingness to expand their participation in co-op by hiring greater numbers of co-op students, and the second is the extent to which employers not currently participating in co-op express a willingness to hire undergraduate co-op students in the future. Also, the job placement responsibility of co-op directors was assessed in order to provide an indication of the institutions' involvement and role in fostering employer utilization of co-op student manpower.

1. Level of Employer Utilization of Undergraduate Co-op Student Manpower

Faculty members participating in co-op were surveyed to determine how many employers they had contacted during the 1974-75 and 1975-76 school terms regarding participation in their respective co-op programs, and of these the number who agreed to participate. These data were also combined to generate acceptance rates for new employers contacted in the two school terms, as presented in Table 3.1 below.

TABLE 3.1: ACCEPTANCE RATES FOR NEW EMPLOYERS CONTACTED BY FACULTY 1974-75 AND 1975-76

	New Employer Acceptance Rate in:			
	1974-75		1976-76	
Characteristics	Number of Faculty Responding	Rate(%)	Number of Faculty Responding	Rate(%)
All Institutions	69	43.8	90	44.8
Unemployment Level:				
High	35	47.7	47	47.2
Low	34	39.9	43	42.1
School Type:				
4-year	37	36.1	46	38.2
2-year	32	52.8	44	51.6
IV-D Funding:				
Yes	50	42.1	67	43.0
No	19	48.5	23	49.8
Program Age:				
Old	51	37.8	66	41.2
New	18	60.8*	24	54.6
Co-op Discipline Area:				
Business & Management	22	50.9	28	54.5
Engineering/Architecture	15	49.9	17	35.2
Health Professions	2	8.3	4	45.8
Liberal Arts	10	28.8	17	50.8
Trade & Industrial	6	36.7	5	23.3

*Significant at the 95% confidence level

As evidenced in Table 3.1 above, the proportion of employers contacted who expressed their willingness to initiate participation in co-op remained at about 44 percent in both the 1974-75 and the 1975-76 school years.

During both time periods, rates of agreement to participate were compared in terms of institutional background characteristics: the level of unemployment in the State where the institution is located, whether the institution is a 2-year or a 4-year school, how long the program had been in operation, and whether the institution received IV-D funding. Mean acceptance rates were also calculated for the different co-op discipline areas in which the faculty members surveyed were working. For each of these sets of characteristics, t or F statistics were utilized to test for differences in acceptance rates during a given time period. These comparisons yielded only one statistically significant difference. It was observed that in the relatively new co-op programs the new employers contacted accepted the offer to participate at a rate in excess of 60 percent, while older co-op programs found less than 38 percent of the employers expressing a willingness to participate in co-op during the 1974-75 school term. A comparable difference, although not statistically significant, also persisted in the 1975-76 school year.

Although not statistically significant, there were differences in acceptance rates between categories of programs in terms of some of the other characteristics which are worth noting. During both time periods, the rates of agreeing to participate among institutions located in States experiencing high levels of unemployment were slightly higher than those for institutions in low unemployment areas. Thus it would seem that an inability to recruit new employers in areas of high unemployment has not been a factor hampering employer utilization of co-op student manpower. Also, the acceptance rate reported by faculty at 2-year schools exceeded the rate reported at 4-year schools in both time periods. This is in part due to the fact that co-op programs at 2-year schools are relatively new in comparison with 4-year institutions. Institutions which do not receive IV-D funding reported slightly higher acceptance rates among contacted employers than did those schools receiving IV-D funding, in each of the time periods, although these differences were not statistically significant. Due to differences in the number of employers contacted by the different institutions and differences in the number of positions made available by different employers, one cannot infer, based on the rate of agreement to participate among employers, that certain types of institutions are more effective in fostering employer utilization of co-op student manpower.

Thus one must also consider the average absolute number of new employer acceptances achieved in a given year by institutions promoting co-op participation among employers. The mean number of employers who agreed to participate in co-op in the 1974-75 and 1975-76 school terms, which was calculated for all institutions and by program type characteristics, is reported in Table 3.2, which follows.

While the number of new employer acceptances did not change significantly from one school year to the next, there was a slight increase over the two years reported. An analysis of the mean number of employers agreeing to participate in co-op reveals only one statistically significant difference when compared by institutional background characteristics. On average, the number of employers acceptances of 2-year institutions is significantly greater in both time periods than the number agreeing to participate in co-op at 4-year schools. This, combined with the fact that the number of co-op positions made available by individual employer is the same at both types of schools, implies that the range of choice in terms of co-op placement alternatives for co-op students or the schools' ability to expand the number of students is somewhat greater among 2-year co-op programs.

A comparison of the average number of new employers contacted who agree to participate with growth in co-op student enrollment

TABLE 3.2: MEAN NUMBER OF NEW EMPLOYER ACCEPTANCES IN YEAR OF CONTACT

	Mean Number of New Employer Acceptances in Year of Contact			
	1974-75		1975-76	
Characteristics	Frequency	Mean	Frequency	Mean
All Institutions	76	8.0	97	9.8
Unemployment Level:				
High	41	9.4	53	12.8
Low	35	6.3	46	6.4
School Type:				
4-year	37	4.9 *	47	6.2 *
2-year	39	10.9	52	13.0
IV-D Funding:				
Yes	51	6.2	68	8.7
No	25	11.6	31	12.3
Program Age:				
Old	58	9.1	74	11.0
New	18	4.3	25	6.2
Co-op Discipline Area:				
Business & Management	25	11.3	31	12.7
Engineering/Architecture	15	3.2	18	2.9
Health Professions	2	2.5	5	5.0
Liberal Arts	12	8.2	18	8.1
Trade & Industrial	7	4.4	7	7.3

*Difference between types is significant at the 95% confidence level (to be discussed more fully in Section III) provides no indication that the employer utilization of co-op student manpower is a hinderance to the future growth and development of co-op. The overall median growth in co-op student enrollment during the years under study was about 25 students. Since our data indicate that the typical first year employer hires 2-1/2 students, then the 8-10 new employers enlisted on the average would indicate an increase, from this source alone, of about 20 to 25 new co-op work experience slots each year. Since in most co-op programs not all students are out on co-op jobs simultaneously, then this growth alone is definitely ample to allow for continued growth in co-op student enrollment of the present rate. In addition, co-op employers also hire increasing numbers of students as the length of time they have participated increases. In the second through fifth years of association with a co-op program, the average employer has increased the extent of participation to five students. Thus it seems clear that the employer utilization of co-op student manpower is sufficiently robust as to allow for even an accelerated rate of growth of cooperative education.

2. Employers' Plans for Future Participation in Co-op

Both employers currently employing co-op students and those not currently participating in co-op were surveyed to determine to what extent they planned to participate in co-op in the future. Employers currently employing co-op students were surveyed to determine whether they planned to expand the number of openings available to co-op students in the next year. Employers not currently employing co-op students were surveyed concerning whether or not they would consider employing co-op students within the next year or two.

Among the employers currently employing undergraduate co-op students, 41.4 percent stated that they had plans to expand the number of co-op positions within their firms in the next year. These results are presented below in Table 3.3.

TABLE 3.3: PLANS FOR INCREASED FUTURE CO-OP PARTICIPATION BY EMPLOYERS CURRENTLY EMPLOYING CO-OP STUDENTS

Plans for Increased Future Participation	Frequency	Percent
YES	89	41.4
NO	126	58.6

To determine whether co-op employers' plans to expand the number of co-op positions is a function of the nature of the firm, its environment, or the type of school with which it is associated, response frequencies were compared by firm size, type of product which it produces, its unionization status, the unemployment level in the State where the firm is located, and whether it accepts co-op students from a 2-year or a 4-year institution. These analyses, which are presented in Table 3.4 below, reveal only one statistically significant difference. Employers accepting co-op students from 2-year institutions expressed plans for expansion of the number of co-op positions available more often than did those employing co-op students from 4-year schools. This implies that in general there is not any strong tendency for certain types of employers to be more likely to expand their utilization of co-op student manpower than others.

In order to further assess the extent of potential co-op expansion, employers who planned to expand the number of co-op placement positions made available by them were asked about the number of additional positions they planned to provide. Among the 41.4 percent of the employers currently employing co-op students who plan to expand the number of co-op placement positions made available by them, the average planned increase in the number of available co-op positions is 3.9. This would represent a 57 percent increase over the 6.8 positions currently provided by employers planning to expand.

TABLE 3.4 : PLANS TO EXPAND THE NUMBER OF CO-OP POSITIONS OFFERED AMONG EMPLOYERS CURRENTLY EMPLOYING CO-OP STUDENTS

	Mean Percent of Employers Currently Employing Co-op Students Who Express Plans to Expand the Number of Co-op Positions Offered	
Characteristic	**Frequency**	**Percent**
All Employers	89	41.4
Firm Size		
1 to 30 Employees	23	34.3
31 to 150 Employees	21	42.0
151 to 499 Employees	16	48.5
500 or more Employees	29	44.6
Firm's Output		
Durable Goods	22	44.9
Nondurable Goods	62	42.5
Public Sector Services	5	25.0
Unionized		
Yes	21	33.3
No	68	44.7
Unemployment Level		
High	53	43.8
Low	36	38.3
Accepts Co-op Students From		
4-Year Institutions	31	31.6
2-Year Institutions	58	*49.6

* Significant at the 95 percent confidence level

Among firms planning to expand, Table 3.5 shows that those employing larger numbers of persons, those operating in the private sector, those which are not unionized, and those located in States experiencing low levels of unemployment appear to be planning an expansion involving a slightly larger number of new co-op placement positions than their counterparts. However the small magnitude and lack of statistical significance in these differences does not allow for any conclusions that certain types of employers, who are planning an expansion, are likely to increase the number of available slots to a greater extent than others. While larger firms do currently employ more co-op students than smaller firms, the differences are nowhere near proportional to the number of regular employees. This, combined with the lack of difference in amount of expansion, would tend to imply that larger firms would represent a significant potential source for increased utilization of co-op student manpower.

Employers not currently utilizing undergraduate co-op student manpower were surveyed concerning whether or not they would consider hiring co-op students within the next year or two. Fifty employers, representing 62 percent of those sampled, stated that they would. As shown in Table 3.6, the reasons cited by employers expressing a willingness to participate in co-op in the future for past reluctance to participate closely resemble those cited by those employers who are unwilling to participate in co-op in the future. In both cases a lack of suitable job openings for co-op students is the most frequently cited reason for failure to participate in co-op. When compared by a t-test of proportions, it was observed that a lack of suitable job openings for co-op students was cited significantly more frequently by those unwilling to hire co-op students in the future than those expressing a future willingness to do so.

TABLE 3.5: MEAN NUMBER OF ADDITIONAL CO-OP POSITIONS PROVIDED BY EMPLOYERS PLANNING TO EXPAND THE NUMBER OF POSITIONS OFFERED

	Mean Number of Additional Co-op Positions Offered in the Next Year by Employers Currently Employing Co-op Students Who Plan to Expand the Number of Positions Offered		
Characteristic	Frequency	Percent	Mean
All Employers planning to expand number of co-op positions offered	69	100	3.9
Firm Size			
1 to 30 Employees	20	30	2.8
31 to 150 Employees	14	22	3.8
151 to 499 Employees	12	18	4.9
500 or more Employees	20	30	4.7
Firm's Output			
Durable Goods	18	26	4.2
Nondurable Goods	49	71	3.8
Public Sector Services	2	3	3.0
Unionized			
Yes	52	75	3.4
No	17	25	5.2
Unemployment Level			
High	40	58	3.4
Low	29	42	4.5
Accepts for Co-op Students From			
4-Year Institutions	25	36	3.6
2-Year Institutions	44	64	4.0

TABLE 3.6: REASONS CITED BY EMPLOYERS FOR FAILURE TO PARTICIPATE IN CO-OP

	By Those Expressing a Future Willingness to Hire Co-op Students		By Those Unwilling to Hire Co-op Students in the Future	
Reason	Frequency	Percent**	Frequency	Percent
Inadequate Explanation or Knowledge of the Co-op Program	5	10.0	3	9.7
Do Not Have Suitable Job Openings for Co-op Students	20	40.0*	22	71.0
Adjustments to Normal Hiring Standards Would be Required	4	8.0	1	3.2
Costs Would Not Make Participation Worthwhile	9	18.0	8	25.8
Program Would Have Negative Effect on Morale of Other Employees	0	0	1	3.2
Students Attitudes Were Unsatisfactory	0	0	2	6.5
Have Had Unsatisfactory Experiences With Other Types of Similar Programs	6	12.0	3	9.7
Other Employers Reported Unsatisfactory Experiences	0	0	1	3.2

* Significant at the 95 percent confidence level

** Percents do not add to 100 since employers could give more than one reason

The other reason cited frequently by both those employers willing to hire co-op students in the future and those unwilling to do so is that costs would not make participation worthwhile. Although the difference was not statistically significant, employers who were unwilling to hire co-op students in the future cited the additional costs resulting from co-op participation as a reason for not participating more frequently than employers who expressed a future willingness to do so.

Employers who do not hire co-op students can also be separated into those who have hired co-op students in the past but have since discontinued the practice and those who have never hired co-op students. The reasons for not participating and the frequency with which they were cited by each of these groups of employers are presented below in Table 3.7. The reasons most frequently cited by employers who have previously employed co-op students were the lack of suitable job openings for co-op students, that costs would not make participation worthwhile, current financial problems plaguing the firm, and that the length of co-op student employment was too short. On the other hand, having had unsatisfactory experiences with co-op in the past was only infrequently cited as a reason for their discontinuing participation in co-op.

In order to determine if the reasons cited for failure to participate in co-op were related to the nature of the firm, response frequencies for the various reasons were computed and compared by the background characteristics of firms and the unemployment level in the State where the firm is located with the aid of chi-square tests. Only one statistically significant relationship was observed. Larger firms stated more frequently than smaller firms that costs would not make co-op participation worthwhile. This implies that the costs attributed to co-op participation act as a stronger disincentive for co-op participation by larger firms than for participation by smaller firms. This perception is in accord with the actual experiences of co-op

TABLE 3.7: REASONS CITED BY EMPLOYERS FOR NOT PARTICIPATING IN CO-OP

	Employers Who Participated in Co-op at a Previous Point in Time		Employers Who Have Not Previously Participated in Co-op	
Reason	Frequency	Percent	Frequency	Percent
Inadequate Explanation or Knowledge of the Program	1	2.2	7	20.0
Do Not Have Suitable Job Openings for Co-op Students	16	34.8	17	48.6
Adjustments to Normal Hiring Standards Would be Required	0	0	3	8.6
Costs Would Not Make Participation Worthwhile	9	19.6	7	20.0
Program Would Have Negative Effect on Morale of Other Employees	2	4.3	0	0
Students Attitudes Were Unsatisfactory	1	2.2	1	2.9
Have Had Unsatisfactory Experiences With Other Similar Types of Programs	4	8.7	4	11.4
Other Employers Reported Unsatisfactory Experiences	1	2.2	0	0
Current Financial Problems	6	19.4	3	8.6
Length of Co-op Student Employment is Too Short	4	12.9	0	0

*Percents do not add to 100

employers. As shown in Chapter 2, larger firms hiring co-op students were significantly less likely to enjoy wage savings by employing co-op students instead of regular employees. The indication that a financial burden is imposed on the firm as a result of co-op participation is reinforced by the fact that employers cited reimbursement for co-op student training and providing direct wage subsidies to co-op students as important incentives for encouraging employer participation in co-op.

The reasons for lack of participation cited most frequently by employers who have never participated in co-op were primarily the lack of suitable job openings for co-op students, an inadequate explanation or knowledge of the co-op program, and that costs would not make participation worthwhile. To a much lesser degree, having had unsatisfactory experiences with other types of similar programs, current financial problems plaguing the firm, and the necessity for adjustments to normal hiring standards were also mentioned. These reasons for failure to participate in co-op resemble those cited by employers who had previously participated in co-op. However, there are some noteworthy differences. Inadequate knowledge of co-op programs was more frequently cited by employers who had not previously participated in co-op, while employers who had terminated previous participation almost never cited this reason. This implies that the reluctance to participate among employers who have not previously participated in co-op may in part be due to lack of data or misinformation.

The reasons cited by employers who have not previously participated in co-op for their failure to participate were compared by the background characteristics of firms and the level of unemployment in the State where the firm is located with the aid of chi-square tests to determine if the responses are related to these characteristics. This analysis revealed two statistically significant relationships:

- Establishments and agencies operating in the public sector cited the necessity for adjustments to normal hiring standards as a reason for not participating in co-op more frequently than did employers operating in the private sector. This may be due, in the case of public sector employers, to legal restrictions or less flexible civil service procedures.

- Larger firms cited having had unsatisfactory experiences with other types of similar programs more frequently than did smaller firms as a reason for failure to participate in co-op. The most frequently cited difficulties experienced in the past included scheduling problems with students, costly training activities, and the lack of necessary skills on the part of students.

Although these two reasons for failure to participate in co-op appear to be real and not perceived and exhibit relationships to firm type and firm size, respectively, they are, overall, not very frequently cited as a reason for not participating in co-op.

Both employers who have previously participated in co-op, but have since terminated their participation, and employers who have not previously participated in co-op cite the inability to establish a co-op work experience which will be beneficial to both the student and the employer and also, but less frequently, the high cost of co-op participation as the primary reasons for their failure to participate in co-op. In addition, the inadequate knowledge about co-op was frequently cited by employers who have not previously participated in co-op as a reason for their lack of co-op participation.

Finally, as seen in Table 3.8, the effort of previous participation on the reasons for not participating is shown only for those employers unwilling to participate in co-op in the future. As shown in that table, the reason most frequently cited by both groups of employers is the lack of suitable job openings for co-op students. The other reason frequently cited by both groups is again the employer's feeling that costs would not make participation worthwhile. About one-sixth of those employers who had previously participated in co-op also cited having had unsatisfactory experiences with other types of similar programs as a reason for their declining to accept co-op students in the future. Among employers who had not previously participated in co-op, approximately

TABLE 3.8: REASONS CITED BY EMPLOYERS WHO WOULD NOT CONSIDER TAKING ON CO-OP STUDENTS IN THE FUTURE FOR FAILURE TO PARTICIPATE IN CO-OP

	Employers Previously But Not Currently Participating in Co-op Who Would Not Consider Hiring Co-op Students		Employers Who Have Not Previously Participated in Co-op Who Would Not Consider Hiring Co-op Students	
Reason	Frequency	Percent*	Frequency	Percent*
Inadequate Explanation or Knowledge of the Co-op Program	0	0	3	21.4
Do Not Have Suitable Job Openings for Co-op Students	11	64.7	11	78.6
Adjustments to Normal Hiring Standards Would be Required	0	0	1	7.1
Costs Would Not Make Participation Worthwhile	5	29.4	3	21.4
Program Would Have Negative Effect on Morale of Other Employees	1	5.9	0	0
Students Attitudes Were Unsatisfactory	1	5.9	1	7.1
Have Had Unsatisfactory Experiences With Other Types of Similar Programs	3	17.6	0	0
Other Employers Reported Unsatisfactory Experiences	1	5.9	0	0

* Percents do not add to 100 since employers could give more than one reason

one-fifth also cited a lack of knowledge of co-op programs as a reason for their failure to participate. The implication is that employers' perceptions that they do not have suitable job openings for co-op students or that it would be costly to do so constrain employers from participating in co-op. In addition, employers who have participated in co-op in the past are occasionally reluctant to do so in the future because of unsatisfactory experiences with similar programs, while some of those who have never participated in co-op base their reluctance on a lack of knowledge of co-op programs.

The three predominant reasons for lack of co-op participation by non-co-op employers do not seem to present significant obstacles to co-op expansion. They are the inadequate knowledge possessed by employers concerning the nature of co-op programs, the perception of an increased financial burden being imposed on the firm as a result of participation in co-op, and the inability of firms to feel they can develop, on their own, co-op work experiences which will be beneficial to both the employer and the co-op student. As the cost-benefit chapter of this report has shown, employers of co-op students are generally reaping a large increase in benefits for a relatively small amount of cost by their participation. Thus, the reasons shown in this chapter to underly most of the unwillingness of employers to participate in co-op, generally stem from perceptions rather than fact. Thus, with increased effort devoted to dissemination of information regarding the benefits to employers resulting from participation in co-op, the employer utilization of co-op student manpower does not appear to be a limiting factor to the potential for expansion of cooperative education.

3. Magnitude of the Co-op Director's Role in Job Placement

The job placement responsibility of each program's co-op director was surveyed in terms of hours devoted per week to this activity. Co-op directors devoted, on the average, 5.28 hours per week to job placement activities.

In order to determine if co-op directors in certain types of institutions experiencing differing levels of unemployment devoted different amounts of time to job placement activities, means were calculated and compared with the aid of F-tests by institutional background characteristics and by the level of unemployment where the institution is located. However, the comparisons revealed no statistically significant differences in the average amounts of time devoted to job placement by co-op directors, contrary to the expectation that co-op directors of programs in institutions in States experiencing high levels of unemployment will have to devote more time to job placement than those in institutions located in States exhibiting low levels of unemployment. This finding corresponds with the earlier discussed one that there was no difference in the number of new employers contacted who agreed to participate in States experiencing high levels of unemployment as compared to those with low levels of unemployment. The implication is that even in States experiencing high levels of unemployment the employers' utilization of co-op student manpower is not a problem, and the potential for co-op expansion is still very great.

4. Summary

Although the rate of agreeing to participate among employers contacted was relatively equal for both the 1974-75 and the 1975-76 school terms, the increase in the number of employers hiring co-op students appears to allow for continued and possibly accelerated growth of employer utilization of co-op student manpower. A large proportion (41%) of employers currently hiring co-op students indicated plans for expanding their future participation in co-op. Also, a large proportion (62%) of employers not currently employing co-op students indicated that they may hire co-op students in the near future. Each of these indicators reflects the potential for future increases in employer utilization of co-op student manpower, which will aid in the future expansion of co-op.

Additionally, it would appear that greater dissemination of information about co-op along with more active marketing by schools among both non-participating firms and the larger firms currently participating could result in greatly increased employer utilization of co-op student manpower.

Expansion of employer utilization of students seems to be accomplished more easily in newer programs and appears to be keeping pace with the rapid growth in student enrollment. These facts, combined with the findings of Chapter 4 showing IV-D to be highly effective in starting new programs, would imply that continuing the Federal role as a starting mechanism for new programs would be the most effective means of increasing the potential for growth of cooperative education.

B. Potential Factors Influencing Co-op to Expand

The analysis of the factors influencing expansion in the level of employer utilization of co-op student manpower is based on both employer and student behaviors. Both employers currently hiring co-op students and those who do not were surveyed to identify incentives which could be utilized to promote their participation in co-op. Also, the relative productivity of co-op student employees as compared to regular employees was assessed. The trade-off between co-op students and regular employees may exert a strong influence on the extent to which employers utilize co-op student manpower. Each of the above indicators was analyzed, and the results are discussed in the following sections.

1. Substitutability of Co-op Student Employees for Regular Employees

As discussed in Section IV of Chapter 2, employers who hire co-op students cite several reasons for their participation in co-op. Among the most important reasons cited for their participation in co-op are finding potential permanent employees, improved communication with schools who are now more responsive to business needs, and improved public relations through enhanced visibility in the community. Employers also rate co-op employees higher than regular employees doing the same kind of work in terms of skill and ideal employee characteristics. This implies that the utilization of co-op student manpower is viewed by many employers as a feasible alternative to hiring regular employees.

The extent to which co-op student/employees are substitutable for regular employees will be reflected in the extent to which employers utilize co-op student manpower. The greater the potential for substitution of co-op manpower for regular manpower, the more likely employers will be to utilize co-op student manpower.

The assessment of the ease of substitution was based on an evaluation of co-op and regular employees by employers, an assessment by employers of the relative productivity of co-op employees, and a comparison of employer acceptance rates for co-op employees with those for regular employees. To the extent which the substitution of co-op for regular employees can be performed by employers without a loss of productivity, employers will be more inclined to hire co-op students.

In order to evaluate the productivity of co-op employees relative to regular employees, employer responses comparing co-op and regular employees in terms of each of the eight skills listed below in Table 3.9 were utilized. In each category, co-op student/employees were rated by employers as being as good as and often better than regular employees. This implies that co-op student/employees can be substituted for regular employees with no decrease in productivity resulting. If this information is widely publicized among employers, it may likely result in a growth in employer utilization of co-op student manpower.

Additional evidence concerning the productivity of co-op employees as compared to regular employees can be gained by examining employers' responses concerning how rapidly undergraduate co-op students improve their productivity in comparison with regular employees holding similar jobs. It was observed that over 57 percent of the employers surveyed felt that co-op students improve more rapidly than regular employees, while less than 10 percent of the employers felt that regular employees progress

TABLE 3.9: RELATIVE COMPARISON OF UNDERGRADUATE CO-OP STUDENT/ EMPLOYEES WITH AVERAGE REGULAR EMPLOYEES

	Percentage of Co-op Employers Rating Co-op Student/Employees as:		
Attribute	Somewhat or Much Better	No Different	Somewhat or Much Worse
Technical Knowledge	46.9	25.8	27.3
Communications Skills	48.1	37.1	14.8
Quality of Work	45.7	37.6	16.7
Quantity of Work	36.2	42.2	21.6
Cooperation, Ability to Work with People	52.6	44.5	2.8
Dependability	46.2	48.1	5.7
Ability to Follow Instructions	50.9	42.9	6.1
Motivation	67.8	28.0	4.3

faster. This relationship is generally found among all types of firms. Since co-op student/employees are often in lower level jobs where they compete with workers who are less educated and less motivated, they are able to progress faster. The implication is that co-op students can generally be substituted for regular employees without sacrificing worker productivity. This ease of substitution will likely promote employer utilization of co-op student manpower. However, it may also imply that as students are used more as regular production workers rather than as trainees, the educational benefits to students may decrease.

The respective hiring rates of co-op and regular applicants for employment, i.e., the percentage of job applicants who are actually hired, was also compared. These rates, for the overall sample and by the background characteristics of the firms surveyed, as presented in Table 3.10, indicate that the proportion of co-op applicants who are accepted for employment is generally much higher than the proportion of regular applicants who are accepted for employment. The higher rates for co-op student applicants is due to the fact that co-op students are short-timers

TABLE 3.10: HIRING RATES OF CO-OP AND REGULAR APPLICANTS FOR EMPLOYMENT

Characteristics of Firms	Acceptance Rates of Co-op Applicants		Acceptance Rates of Regular Applicants
Overall Mean	47.4%	**	15.4%
Type of Industry:			
Private Nondurable Goods Production	45.7		28.4
Private Durable Goods Production	49.4	**	11.7
Public Service Industry	36.5		9.6
Size of Firm:			
Less than 30 employees	55.4		13.5
21 to 150 employees	47.1		12.3
151 to 499 employees	45.0		11.5
500 or more employees	41.2		21.9
Unionization Status:			
Unionized	37.1 *		21.3
Nonunionized	51.7	**	13.0
Unemployment Rate:			
High Unemployment States	49.2		17.7
Low Unemployment States	45.0		12.6
Type of School in Cooperation with:			
2-Year Co-op School	53.2 *	**	14.9
4-Year Co-op School	39.9		16.1

*Statistically significant difference at the 95 percent confidence level between acceptance rates calculated for a particular group of applicants by the background characteristics of the firms.

**Statistically significant difference at the 95 percent confidence level between acceptance rates of co-op and regular job applicants.

who are prescreened and presold prior to their applying for a co-op position. Comparisons between co-op and regular job applicants and, within each applicant type, by the background characteristics of firms which indicated statistically significant differences are discussed below:

- The overall proportion of co-op applicants accepted for employment of 47 percent was significantly greater at the 95 percent confidence level than the acceptance rate for regular applicants, which was approximately 15 percent. The higher proportion of co-op applicants who are accepted can be attributed to the screening process, which co-op students go through during the employment process. This process carefully selects students for available openings, and then only a small number of candidates are referred to each opening. This results in the higher acceptance rate for co-op students as compared to regular applicants, who flock to employers in much greater numbers.
- Although not always statistically significant, the pattern of higher employer acceptance rates for co-op job applicants than regular job applicants is consistent for every employer background characteristic. This also is likely due to the sophisticated screening process to which co-op job applicants are subjected.
- The acceptance rate for co-op applicants was significantly higher among nonunionized firms as compared to unionized firms. Although it has been learned that in very few cases are co-op employees required to join a union, the subtle pressures exerted by the union on hiring practices may account for this difference in acceptance rates.
- The acceptance rate for co-op applicants was significantly greater among firms cooperating with 2-year co-op programs as compared to those firms cooperating with 4-year co-op programs. Since there is no statistically significant difference in the average number of co-op applicants for positions with firms cooperating with 2-year co-op programs when compared with the number applying for such positions with firms cooperating with 4-year co-op programs, this implies that employers may utilize co-op student manpower from 2-year schools to a greater extent than that from 4-year schools. To a great extent this is a function of the type of job rather than the level of school. Hiring rates were significantly higher for white collar jobs other than professional and for service workers, both of which are much more common among students in co-op programs at 2-year schools.

The higher acceptance rates for co-op job applicants can be attributed to both the high productivity of co-op student/employees as compared to regular employees in similar jobs and the screening of co-op students which takes place prior to their interviewing for a position. These two factors no doubt contribute to employers' utilization of co-op student manpower.

2. Factors Promoting Employer Utilization of Co-op Student Manpower

Both employers who do and those who do not currently employ co-op students were asked to rate various incentives for increasing or initiating co-op participation, respectively. The incentives which may promote employer utilization of co-op student manpower, along with the degree of importance assigned to them by employers who currently hire co-op students and those who do not, are presented below in Table 3.11.

A review of the findings in this table indicate two incentives are more important than the others, both for employers currently hiring co-op students and those who do not currently hire them. Employers who currently hire co-op students assigned high levels of importance to employer reimbursement for co-op student training and providing direct wage subsidies for co-op students as incentives to promote increased employer utilization of co-op student manpower. These findings imply that such incentives would result in a potentially large increase in employer utilization of co-op student manpower.

Although these incentives are generally assigned equally high levels of importance when compared by the background characteristics of firms and whether a firm plans to expand the number of co-op positions available, it was observed that firms operating in the public sector view wage subsidies to the co-op student as less important than do firms operating in the private sector.

TABLE 3.11 INCENTIVES PROMOTING EMPLOYER UTILIZATION OF CO-OP STUDENT MANPOWER

	Percent of Employers Hiring Co-op Students Who Considered Incentive:			Percent of Employers Who Do Not Hire Co-op Students Who Considered Incentive:		
	Very Important	Somewhat Important	Not Important	Very Important	Somewhat Important	Not Important
Tax Rebates	22%	19%	59%	10%	30%	60%
Public Recognition	16%	45%	39%	14%	34%	52%
Government Insurance Program Protecting Employers Against the Consequences of Serious Co-op Student Errors	17%	26%	57%	22%	24%	54%
Reimbursement for Co-op Student Training	36%	28%	36%	27%	25%	48%
Faculty Status for the Staff Who Work with Co-op Students	16%	26%	58%	8%	15%	77%
Accrediting Your Training Operation as an Educational Institution	17%	21%	62%	12%	17%	71%
Reduction in Minimum Wage	8%	8%	84%	6%	7%	87%
Direct Wage Subsidy for the Co-op Student	29%	30%	41%	30%	24%	46%
Approaches to Top Management by Political or Business Leaders	10%	25%	65%	9%	18%	73%
Promise of Union Cooperation	5%	6%	89%	9%	1%	90%
Availability of Sufficient Numbers of Students on Short Notice for Brief Periods of Time	19%	31%	50%	19%	31%	50%

Employers not currently employing co-op students also assigned greater importance to employer reimbursement for co-op student training and providing direct wage subsidies for co-op students in terms of stimulating their participation in co-op in the future. These incentives, which effectively reduce the wages of co-op/student employees, will likely have a positive impact on co-op participation by employers who do not currently hire co-op students.

A comparison among types of firms revealed only one statistically significant relationship. Providing a direct wage subsidy for the co-op student was viewed as a more important incentive for co-op participation among smaller firms than among large firms. While this implies that a direct wage subsidy provided to the student would result in a relatively larger increase in the number of smaller firms utilizing co-op student manpower, it may be that a less expensive program of information dissemination would be close in effectiveness since our cost-benefit data have shown that smaller firms are in fact more likely to enjoy wage savings benefits by hiring co-op students.

Although the reimbursement of employers for co-op student training and providing a direct wage subsidy to co-op students may result in increased employer utilization of co-op student manpower, it may be only short-lived. Subsidies such as these often create a growth that is only temporary, and the results may fade once the subsidies are discontinued.

It is also interesting to note that public recognition is rated as at least somewhat important by almost as many employers as are the two subsidies. This, in conjunction with the positive findings presented in the employer cost-benefit analysis section of this report, would imply that relatively inexpensive and easily undertaken incentives, such as this, may be sufficient to provide for any needed expansion of employer utilization of co-op student manpower.

3. Summary

Although employers assign great importance to employer reimbursement for co-op student training and providing direct wage subsidies for co-op students as incentives promoting employer participation in co-op, the effects of these subsidies may only be temporary and fade once they are discontinued. Additionally, expanded dissemination of actual current benefits would very probably aid in the growth of employer utilization of co-op student manpower without the need for actual subsidies. As seen in Chapter 2 of this report, the favorable cost-benefit ratio currently being enjoyed by participating employers would tend to indicate that additional incentives are probably not needed unless very rapid growth is desired. Also, as noted above, while smaller firms considered wage subsidies as more important, the cost-benefit analysis showed that it is the smaller firms that are actually already enjoying greater benefits due to wage savings than are larger firms. Thus, informing employers of such facts may serve to promote employer utilization of co-op student manpower without the need for costly incentives. In this vein, the generally higher productivity of co-op students as compared to regular workers in similar jobs and the screening process which co-op students are subjected to will likely promote employer utilization of co-op student manpower as increasing numbers of employers become aware of these benefits.

II. ANALYSIS OF THE NATIONAL POTENTIAL FOR EXPANSION OF STUDENT PARTICIPATION IN CO-OP

In assessing the demand for the number of co-op positions currently available in co-op educational institutions, one approach is to focus on the decisions by individual students between co-op and non-co-op programs. The student's choice to participate or not to participate in co-op within the institution will be the emphasis in this section.

In the first part, co-op student characteristics will be distinguished from non-co-op student characteristics. By determining the factors which will differentiate between students who choose to participate in co-op and those who do not with a reasonable degree of success, it might be possible to determine the number and type of students who are most likely to enroll in programs of cooperative education. This measure could serve as an indicator of the extent to which co-op educational services are likely to be utilized. In the second part, the reasons why students currently participating in co-op have made that choice are explored. Finally, in the third section, the reasons of non-co-op students for not participating are investigated.

A. Analysis of Student Choice Between Co-op and Non-Co-op Participation

Given the dichotomous nature of the dependent variable, co-op versus non-co-op status of the student, an appropriate statistical technique to apply in this instance is discriminant analysis.[1/] By utilizing discriminant analysis, the characteristics will be determined which are capable of distinguishing between actual co-op and non-co-op students with the greatest degree of accuracy. Once these characteristics have been identified, they will serve as a basis for identifying the types of students who are potentially most likely to enroll in co-op educational programs. This knowledge will subsequently enhance the ability to predict the level to which co-op educational services are likely to be utilized, given the number of potential students exhibiting such characteristics.

[1/] See Technical Notes for a description of this technique.

1. Variables Selected for the Analysis

A group of nine independent variables were included in the analysis. These variables were selected on the expectation of their ability to discriminate between the co-op and non-co-op status of students.

The variables chosen for inclusion in the analysis and their hypothesized relationship to student participation in co-op which led to their inclusion are given below in Exhibit 3.1.

EXHIBIT 3.1: ANALYSIS OF STUDENT PARTICIPATION IN CO-OP

Variable	Hypothesis
Age	Relatively older students who are more familiar with the job market are more likely to participate in co-op than younger students.
Sex	Male students who are more occupationally oriented and who are expected to often be shouldering the financial responsibilities of a family are more likely to participate in co-op than female students.
Ethnicity	Minority students who are more interested in occupationally focused training and are more concerned about employment after graduation are more likely to participate in co-op than nonminority students.
Marital Status	Married Students who have greater financial responsibilities and are expected to be more dependent on job earnings for financial support are more likely to participate in co-op than unmarried students.
Parental Support	Parental support was measured in terms of the percentage of a student's expenses while at college which comes from parents or other relatives. Students with lesser amounts of financial support from parents or other relatives, because of the unrelieved burden of the cost of schooling and other financial responsibilities are more likely to participate in co-op than students receiving greater amounts of support from parents or other relatives.
Veteran Status	Students who are veterans are more likely to be participants in co-op than students who have not served in the military.
G.I. Bill	Students receiving large amounts of support from the G.I. Bill are less likely to be participants in co-op than those receiving lesser amounts or no support from the G.I. Bill.
Tuition Assistance	Tuition assistance was measured by the sum of tuition subsidies or fee waivers, student loans, and scholarships or grants. Students who are receiving lesser amounts of or no tuition assistance, and hence are more likely to be dependent on job earnings for financial support, are more likely to participate in co-op than those students receiving larger amounts of financial support.

2. Prediction of Students' Co-op Participation Status

The previously outlined variables were utilized in performing six discriminant analyses. A discriminant analysis was conducted for the institution-wide sample and for each of the individual discipline areas: business and management, engineering/architecture, health professions, liberal arts, and trade and industrial. Since the results did not differ for individual discipline areas, only a discussion of the institution-wide discriminant analysis will be presented.

The following variables are presented in the order in which they were chosen for inclusion in the stepwise discriminant analysis. Also the standardized discriminant function coefficients, that have absolute values indicating each variable's relative contribution to the function, are presented in Table 3,12 below.

TABLE 3.12: DISCRIMINANT FUNCTION

Variable	Discriminant Function Coefficient
Parental Support	-0.02221*
Race	-0.01239*
Tuition Assistance	-0.01267*
Age	Removed
Sex	-0.01267*
Marital Status	0.01258
Veteran Status	-0.02190
Number of Children	-0.01326
G.I. Bill	0.01694

*Significant at the 95 percent level of confidence.

The four variables which are designated by an asterisk contributed a significant increase to the discriminating power of the function at the 95 percent confidence level. The remaining five did not significantly contribute to the discriminating power yielded by the variables already present. As indicated in the table, the variable age was removed from the analysis. Age entered the stepwise analysis on the fourth step, but it was later removed because it did not significantly increase the discriminating power of the function once subsequent variables had been included in the analysis. This occurrence took place because of the high correlation between age and the variables which entered the analysis in later steps, such as marital status, veteran status, and number of children in a family headed by the student. Although eight of the nine potential variables were included in the analysis, only four of them added significantly to the discriminating power of the function. They are parental support, race, tuition assistance, and sex.

The degree of separation of the two groups is indicated by the magnitude of the Wilks' Lambda. The smaller the Wilks' Lambda, the greater the degree of separation between the two groups. Since Wilks' Lambda is measured over a range from zero to one and it was found to be equal to 0.98686 after the inclusion of the last variable yeilding a significant increase in discriminating power, it is apparent that the degree of separation between co-op and non-co-op students based on the variables included in the analysis is minimal. It is difficult to discriminate between the two groups based on the variables present in the analysis.

Once it is determined which variables will be retained in the discriminant function for the two groups with known group membership, a classification function can be derived which will permit the classification of new cases with unknown memberships. In this case the classification function was used as a check on the adequacy of the discriminant function. The original set of cases were used to see how many would be correctly classified by this function. This check serves as an empirical measure of the success in discrimination by observing the proportion of correct classifications, presented below in Table 3.13.

TABLE 3.13: PREDICTION RESULTS OF THE INSTITUTION-WIDE DISCRIMINANT ANALYSIS

		Predicted Group Membership	
Actual Group	Number of Cases	Co-op	Non-Co-op
Co-op	1526	883(57.9%)	643(42.1%)
Non-Co-op	2248	1019(45.3%)	1229(54.7%)

Based on the above predictions, the percentage of "group" cases correctly classified is 55.96 percent. A very large number of misclassifications occurred. This high percentage error rate (44%) is indicative of the inability of the variables selected as discriminators to accurately predict whether or not a student will choose to participate in co-op. Given the poor predictive ability of the discriminant function, it appears that any determination of the extent to which co-op educational services are likely to be utilized based on this measure would possess very little reliability.

The sign of the standardized coefficient of the discriminant function for each variable is indicative of its relationship to the group into which the individual is classified. This relationship can be examined by comparing the sign of coefficient with value of the group centroid for each of the groups. Once this comparison is made, one can determine if the initially specified hypotheses expressing the relationship between student status and the various student characteristics are substantiated or not by the results of the institution-wide discriminant analysis. The variables are presented in Exhibit 3.2 below in the order in which they entered the stepwise analysis, which indicates the relative discriminating power possessed by them.

EXHIBIT 3.2: RESULTS OF STUDENT PARTICIPATION DISCRIMINANT ANALYSIS

Variable	Hypothesis	Result
Parental Support	The greater the amount of parental support received by a given student, the less likely he is to participate in co-op.	Confirmed
Race	Minority students are more likely to participate in co-op than are white students.	Confirmed
Tuititon Assistance	Students who receive greater amounts of tuition assistance are less likely to participate in co-op than those who receive lesser amounts of or no tuition assistance or none at all.	Confirmed
Sex	Female students are less likely to participate in co-op than are male students.	Confirmed
Marital Status	Married students are more likely to participate in co-op than unmarried students.	Confirmed
Veteran Status	Students who are veterans are more likely to be participants in co-op than students who have not served in the military.	Confirmed
Number of Children	The greater the number of children in a family headed by a given student, the more likely that the student is to be a participant in co-op.	Outcome contrary to expected relationship: students with greater numbers of children were actually less likely to participate in co-op.
G.I. Bill	The greater the amount of support which a student receives from the G.I. Bill, the less likely he is to be a participant in co-op.	Outcome contrary to expected relationship: students receiving more support from the G.I. Bill were actually more likely to participate in co-op.

EXHIBIT 3.2: RESULTS OF STUDENT PARTICIPATION DISCRIMINANT ANALYSIS

All of the relationships exhibited between the predictive variables included in the analysis and the dependent variables, co-op versus non-co-op status of the student, except for the number of children and the amount of support received from the G.I. Bill, confirm the initially specified hypotheses. The differences in the characteristics exhibited by the two groups are minimal. Even though the relationships generally correspond to the hypothesized ones, it is not possible to predict very accurately whether a student will participate in co-op based on these variables. Also, these characteristics may in some cases be results rather than causes of co-op participation, in which case the differences would not appear if one was viewing a group of students prior to their decision to enroll or not to enroll in co-op.

3. Summary

The nine variables initially specified to discriminate between students likely to participate in co-op and those not likely to participate do not form the basis for accurately predicting whether a student will participate in co-op. While certain types of students are more likely to participate in co-op than others, this group of student characteristics could not effectively predict a student's status as co-op or non-co-op. The characteristics included in the analysis do not indicate any marked distinction between the nature of students who participate in co-op and those who do not.

B. Reasons Cited by Co-op Students for Participating in Co-op

Measures of the impact of alternative motiviations for a co-op student to participate in co-op can be determined by the importance co-op students assign to various reasons for participation. The more important reasons provide a basis for identifying the factors influencing students' demand for co-op educational services. Three reasons were cited as being most important in a student's choice to enter co-op. The reasons were: to acquire skills and experience related to career objectives, to make the educational experience more rewarding, and because they felt it would make it easier to get employment after graduation. Each of these reasons focuses on the student's career objectives. Based on these findings, it appears that part of the demand for co-op educational services is a function of the amount of career relevance students associate with a given co-op program.

To determine if there were differences among students in the reasons why they participate in co-op, comparisons were made by student and institutional characteristics, and the significant relationships are presented in Table 3.14. Male, minority, and students in 4-year institutions stated more frequently that they participated in co-op because additional income was absolutely necessary to continue their education.

Female students and those students in 4-year schools assigned greater importance to the acquisition of skills and experience related to career objectives. This may be due to the relatively disadvantaged position of females in the employment market. They feel that enrollment in co-op will give them the added leverage which they need. The greater importance assigned to the acquisition of skills and experience in 4-year schools is probably related to the fact that outside of the co-op program, such schools offer less career-oriented training than in 2-year schools. While students in 2-year schools are frequently involved in occupational-oriented training, students in 4-year institutions generally receive a more generalized background and must participate in co-op to acquire a career-oriented experience. Therefore, for some students the desire to improve their future employability through acquisition of career-relevant experience exerts a strong influence on their decisions to participate in co-op.

Students in 2-year institutions cited that the recommendation of respected individuals was an important factor in their decision to participate in co-op. This implies that students in 2-year

TABLE 3.14: RELATIVE IMPORTANCE ASSIGNED TO CO-OP STUDENTS' REASONS FOR PARTICIPATION BY STUDENT CHARACTERISTICS AND BY TYPE OF SCHOOL

	Student Characteristics			Institutional Characteristics	
	Age	Sex	Race	4-Yr. vs. 2-Yr.	Employment Level
Mandatory for my major					
Additional income was absolutely necessary to continue education		M	NW	4	
To acquire skills and experience related to my career objectives		F		4	
Recommended by persons I respected				2	
Wanted additional income although it was not absolutely necessary	Y				
To make my educational experience more rewarding		F	NW	4	
To prepare me for a changing job market		F	NW	4	LU
Felt it would make it easier for me to get employment after graduation		F	NW	4	LU

Y - Reasons assigned statistically significant greater importance by younger students
4 - Reasons assigned statistically significant greater importance by students in 4-year institutions
2 - Reasons assigned statistically significant greater importance by students in 2-year institutions
M - Reasons assigned statistically significant greater importance by male students
F - Reasons assigned statistically significant greater importance by female students
NW - Reasons assigned statistically significant greater importance by minority students
LU - Reasons assigned statistically significant greater importance by students enrolled in institutions in areas of low unemployment

schools give greater emphasis to the insight of those who are perhaps more knowledgeable of the employment market for individuals with various skills than do students in 4-year institutions.

Younger students assigned greater importance to the desire for additional income, although they claimed it was not absolutely necessary. Co-op, although it provides in this case only marginal financial support, does have a financial incentive associated with it. This incentive seems to exert a stronger influence on younger, and probably more financially constrained, students' decisions to participate in co-op.

The three remaining reasons cited as important in students' decisions to participate in co-op all relate to preparation for subsequent employment. Female and minority students and students in 4-year institutions cite making their educational experience more rewarding, preparation for a changing job market, and facilitating greater ease in acquiring employment after graduation as important factors in their decisions to participate in co-op. The central motivation for each of these reasons was the students' desire to improve their employability after graduation. Students enrolled in institutions in low unemployment areas also assigned greater importance to preparation for a changing job market and facilitating easier attainment of employment after graduation. In each case, students recognized the added leverage in obtaining employment after graduation as a result of their participation in co-op. This recognition provides a major incentive for student participation in co-op.

While most students attach great importance to the acquisition of career-relevant skills and experience, two other important reasons, which show differential impact on different types of students, are the financial incentives and the improved employability of the students subsequent to graduation. Students who typically have greater financial need and/or responsibilities cite the financial benefits accruing from co-op as a strong incentive for co-op participation. Also, students who are frequently in a disadvantageous position with respect to employment subsequent to graduation utilize co-op as a means for improving their employability after graduation. Therefore, it appears that financial considerations and the desire to improve employability after graduation are, in addition to the career development motivation, also influential factors in determining student demand for co-op educational services.

C. Non-Co-op Students' Reasons for not Participating in Co-op

Reasons for non-co-op students not to have participated in co-op were investigated as potential obstacles to co-op expansion. The two most frequent reasons given by the respondents for not participating in co-op were not knowing about co-op program (26%) and lack of interest in cooperative education (23%).

The reasons non-co-op students gave for not participating in co-op were compared by student and institutional characteristics and those relationships which are statistically significant are presented in the following table, 3.15. The most frequently given reason for not participating in co-op, not knowing about co-op programs, was more frequently mentioned by students in publicly controlled institutions, and by those in health professions or liberal arts. These findings reveal that a major obstacle to the expansion of co-op is the lack of knowledge about existing co-op programs on the part of students, and that co-op programs in public institutions, 2-year schools, and in liberal arts and health have been especially weak in publicizing their programs to all students.

The second most frequently cited reason for not participating, lack of interest in co-op, was more important among non-minority students. Among the other less commonly given reasons, not wanting to delay graduation, was primarily a function of program type with engineering students most concerned about this. Although

TABLE 3.15: REASONS FOR NON-CO-OP STUDENTS NOT PARTICIPATING IN CO-OP BY STUDENT AND INSTITUTIONAL CHARACTERISTICS

	Institutional Characteristics			Student Characteristics		
	4-yr. vs. 2-yr.	Unemployment Level	Public vs. Private Control	Age	Sex	Race
There is no cooperative education program in my major			P			
Not interested in a cooperative education program						NM
Participation in co-op would mean loss of other financial aid		H			M	
Don't want to delay graduation	4		Q	Y		
Don't know about co-op program	2		P			

4 - Reasons indicated with a statistically significant greater frequency by students in 4-year institutions

2 - Reasons indicated with a statistically significant greater frequency by students in 2-year institutions

H - Reasons indicated with a statistically significant greater frequency by students from institutions in high unemployment areas

P - Reasons indicated with a statistically significant greater frequency by students in publicly controlled institutions.

Q - Reasons indicated with a statistically significant greater frequency by students in privately controlled institutions

Y - Reasons indicated with a statistically significant greater frequency by younger students

M - Reasons indicated with a statistically significant greater frequency by male students

F - Reasons indicated with a statistically significant greater frequency by female students

NM- Reasons indicated with a statistically significant greater frequency by non-minority students it was cited more frequently by students in privately controlled and in 4-year schools, this is because engineering programs are more common in those types of schools. This reason was also cited more often by younger students. While this is partly related to the fact that engineering students are younger than those in other disciplines, age did also have some effect of its own. Since co-op programs in engineering do often lengthen the traditionally 4-year program to 5 years, this concern is legitimate. However, our cost-benefit findings have shown that even considering this extra time in school, co-op is, in the long run, more profitable to the student. These findings imply that in order to stimulate co-op enrollment, institutions need to inform students of such benefits resulting from participation in co-op. This will probably encourage more students to participate in co-op since the increased financial and opportunity costs burden of a delayed graduation and additional tuition costs are compensated for by the increased earnings after graduation.

The other two reasons cited by students for not participating in co-op were loss of other financial aid due to participation and the lack of a co-op program in students' majors. Students in institutions in high unemployment areas more often cite loss of other financial aid as a reason for not participating in co-op, although we have no theoretical explanation for this difference. However, the greater frequency with which males and students from poorer backgrounds cite this reason would seem to be a function of the relative financial status of these students. Male students frequently have greater financial responsibilities, and students from lower parental income backgrounds have fewer financial resources. These constraints make loss of other financial aid because of participation in co-op, presumably because co-op earnings would raise their income past eligibility criteria--a more important reason for their lack of participation in co-op than for their counterparts.

Lack of a co-op program in students' majors was cited as a reason for students not participating in co-op more frequently by students in publicly controlled institutions than by students in privately controlled schools. However this is actually due to the relationship to program area. Students in the health professions and liberal arts, more common in publicily controlled institutions, are more likely to cite the absence of a co-op program in their major as the reason for not participating.

Each of the above reasons for non-co-op students not participating in co-op, which serves as potential obstacles to the growth of co-op, can be limited or eradicated by the following cources of action:

- increasing student awareness of existence of and benefits from co-op programs;
- expansion of co-op to previously untapped discipline areas; and
- removing barriers to other forms of financial aid for participating in co-op.

The successful expansion of co-op is a function of the extent to which the previously cited courses of action are pursued. The most important factor for increasing student participation, just as it is in the case of employers, is primarily increased dissemination of information about co-op, which can be easily accomplished with little cost.

III. ANALYSIS OF THE NATIONAL POTENTIAL FOR EXPANSION OF CO-OP IN INSTITUTIONS OF HIGHER EDUCATION

A. Indicators of Commitment to Co-op Growth and Development

The broad issue to be addressed here is the potential for growth and development of cooperative education in institutions of higher education. This part of the analysis will investigate attitudinal responses regarding institutional expansion and other indicators of the development of co-op. Indicators of co-op expansion will be examined in terms of institutional characteristics in an effort to determine where the strongest and weakest potentials for expansion of co-op exist.

1. Recruitment of Support for Cooperative Education

To determine where the greatest efforts are being made to develop institutional and participant support for co-op, senior academic officials were asked what types of activities they had engaged in to muster support from various groups for cooperative education. Comparisons of the responses were made between 2-year and 4-year institutions of higher education, those institutions receiving IV-D funding and those which do not, publicly-controlled and privately-controlled institutions, and institutions in areas of high unemployment and those in areas of low unemployment.

The overall extent to which various types of support were sought and the groups from which that support was solicited are as indicated in Table 3.16 below. A large proportion of administrators have solicited various forms of support for co-op from different sources, and the form of support corresponds closely to the roles played by each of these groups in cooperative education. Boards of trustees and the administration are relied on strongly for financial support and endorsements, while increased participation was sought from faculty, students, and employees. Although there is no appreciable difference in the types of support for co-op sought by 2-year and 4-year institutions, the overall extent of activity in this area indicates a considerable exertion of effort by academic officials on behalf of co-op for acquiring the necessary support from the most relevant sources.

TABLE 3.16: INSTITUTIONAL SOLICITATION OF SUPPORT FOR CO-OP

	% of Senior Academic Officials Soliciting Support by:					
	Requests For Financial Support		Requests For Participation		Public Statements or Written Endorsements	
Major Sources of Support	2-year	4-year	2-year	4-year	2-year	4-year
Board of Trustees	59% (19)	53% (17)			31% (10)	25% (8)
Administration	50% (16)	47% (15)			38% (12)	25% (8)
Department Chairmen			88% (29)	72% (23)		
Faculty			84% (27)	72% (23)		
Students			63% (20)	69% (22)		
Potential Co-op Employers			59% (19)	75% (24)		
Current Co-op Employers			56% (18)	69% (22)		
	IV-D	Non-IV-D	IV-D	Non-IV-D	IV-D	Non-IV-D
Board of Trustees	63% (27)*	26% (10)			30% (13)	18% (7)
Administration	51% (22)	37% (14)			35% (15)	24% (9)
Department Chairmen			93% (40)*	63% (24)		
Faculty			91% (39)*	63% (24)		
Students			74% (32)	53% (20)		
Potential Co-op Employers			77% (33)	55% (21)		
Current Co-op Employers			67% (29)	58% (22)		

* Statistically significant at the 95 percent confidence level.

The previously outlined general pattern of support for co-op appears in both schools which receive IV-D funding and those which do not. However, IV-D schools requested greater amounts of financial support from the boards of trustees than did non-IV-D schools. This may indicate a somewhat greater commitment to co-op by IV-D institutions than by non-IV-D schools. However, since IV-D schools receive financial support from the Federal government for a limited period, they may simply be preparing to replace those funds in an effort to continue their co-op program. Non-IV-D schools, on the other hand, being generally older and better established, would be less likely to need to acquire new sources of financial support. Nevertheless, the possible greater efforts being made on behalf of co-op in IV-D schools is supported by the fact that they have engaged in the solicitation of almost all of the various forms of support to a larger extent than did non-IV-D schools. However, this is not statistically significant in all cases (see Table 3.16).

No statistically significant differences in solicitation of support for co-op was displayed when schools in high unemployment areas were compared with those in low unemployment areas. However, although schools in the two types of areas exerted similar levels of efforts in requesting financial support for and endorsement of co-op, those in high unemployment areas were generally more frequently engaged in the pursuit of co-op participation than those in low unemployment areas. This difference in requests for participation might be hypothesized to indicate greater difficulty experienced by schools in high unemployment areas in acquiring participant support of co-op than that found in low unemployment areas. However, the available evidence, discussed later in this chapter, does not generally support this conclusion.

A comparison of publicly-controlled institutions with privately-controlled ones shows the same distribution of the most frequently displayed forms of solicitation for co-op support. While both public and private institutions engaged primarily in the solicitation of the same forms of support, there was a consistent, although not statistically significant, difference in the degree to which that support was solicited. In almost all cases, public institutions sought the various types of support from the different sources more frequently than did private institutions. This may reflect a somewhat greater commitment to co-op in public institutions than in private ones.

The distribution of co-op support solicitation was very similar in all of the comparisons made on the basis of institutional characteristics. Although the different forms of support from the various sources were sought with somewhat diverse levels of intensity by the various types of institutions, the distribution of that solicitation indicated little difference in levels of commitment to co-op by different types of institutions. In general, relatively high levels of commitment have been exhibited by all types of institutions.

2. Institutional Plans for Co-op Expansion

The senior academic officials of the samples' co-op schools were asked whether or not there were plans for expanding cooperative education at their respective insitutions, and 76.6 percent said yes. The large number of institutions which indicate plans for expansion of cooperative education leads one to inquire whether or not the small proportion who do not have plans for expansion are more frequently found in one type of institution than another. After a comparison of plans for expansion by institutional characteristics such as 2-year versus 4-year, high versus low unemployment, public versus private control, and those which receive IV-D funding versus those which do not, only one sizeable difference was observed: a greater percentage of those institutions in high unemployment areas did not have plans for expansion (see Table 3.17).

TABLE 3.17: INSTITUTIONAL PLANS FOR EXPANSION OF COOPERATIVE EDUCATION

UNEMPLOYMENT	YES	NO
High	65.6% (21)	34.4% (11)
Low	87.5% (28)	12.2% (4)

The above relationship is worth noting even though it is not statistically significant at the 95 percent confidence level. It implies that institutions in low unemployment areas may be more likely to expand their co-op programs than those in areas of high unemployment even though the evidence reported elsewhere shows that institutions in high unemployment areas do not seem to have more difficulty in placing co-op students than those in areas exhibiting low levels of unemployment.

Although a majority of all types of the schools surveyed indicated that they had plans for co-op expansion, it is also important to note the form which that expansion is expected to take. Table 3.18 below indicates the most frequently-cited types of planned expansion.

TABLE 3.18: MOST FREQUENTLY CITED TYPES OF PLANNED CO-OP EXPANSION

Type	Frequency	Percent
Increased Enrollment	19	38.8%
Increased Staff	10	20.4
Add New Curriculum	6	12.2
Integration of Co-op in all Feasible Academic Programs	2	4.1

The most frequent types of planned expansion, accounting for over 75 percent of the responses given, were to increase enrollment, increase staff, and add new curriculum or expand co-op to additional academic programs. Each of these types of expansion is essential to the comprehensive growth of co-op educational services. Comparisons of the various forms of planned expansion which were cited were made by the various institutional characteristics, but no significant differences were found.

3. Selection of Students Interested in Co-op

Senior academic officials of co-op schools were asked how big a role students' interest in co-op played as an admissions criterion. Over 75 percent of the school officials said that it played no role in admissions policy, while only 12.7 percent stated that it was a major admissions criterion. These responses were examined according to institutional characteristics, and two significant relationships were observed. First, students' interest in cooperative education exerted a greater influence in the admissions criterion of 4-year institutions than those of 2-year institutions. However, this relationship can be explained by the fact that most 2-year institutions are public colleges which have open-door admissions policies as opposed to the more stringently enforced admissions policies of private institutions. Consistent with this, it was also observed that privately-controlled institutions utilized students' interest in cooperative education as an admissions criterion significantly more often (33% vs. 3%) than do publicly-controlled institutions. This difference, as explained above, is due to general absence of any screening criterion in publicly-controlled institutions. Also, the frequency of use of student interest as an admissions criterion was not different for mandatory versus voluntary co-op programs.

The admissions policies of institutions, therefore, do not serve as an indicator of commitment to expansion of co-op. Although significant differences have been observed in the role which students' interest in co-op plays in admissions criteria, these differences are primarily a function of the overall admissions policies of public versus private institutions. One cannot, therefore, conclude that greater efforts are made in one type of institution versus another to enroll students interested in co-op.

4. Number of Co-op Students Anticipated in Future Years

Co-op directors were asked to indicate what the expected co-op enrollment for their institutions would be one year, three years, and five years in the future. These projected enrollment figures were divided by current enrollments to arrive at measures of the relative expected increases in enrollment with respect to current enrollment levels. These measures, although somewhat subjective, provide a quantitative measure of projected future enrollment levels.

In order to determine if greater increases in enrollment could be forecasted for certain types of institutions rather than others, mean enrollment projections were calculated by institutional characteristics. These projections of the proportional change in co-op enrollment for 2-year and 4-year institutions were compared for each of the three time periods, using t-tests, and no significant differences were observed. The same comparisons were made between schools receiving IV-D funding and those not receiving it and between those in high unemployment areas and those in areas with low levels of unemployment. Again, no significant differences in the projected enrollment levels were observed.

Although there are no significant differences in the projected enrollment levels when they are compared by institutional characteristics, one can gain insight into the magnitude of the increase in co-op enrollment by comparing the projected increases with the observed growth of co-op enrollment over recent years. Table 3.19, which follows, presents proportional changes in co-op enrollment over various time periods calculated for the overall sample of co-op institutions and by institutional characteristics.

TABLE 3.19: PROPORTIONAL CHANGES IN CO-OP ENROLLMENT

	Time Period									
	Past				Future Projections					
Characteristic	1973-74 to 1974-75		1973-74 to 1975-76		1975-76 to 1976-77		1975-76 to 1978-79		1975-76 to 1980-81	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Type of Institution:										
2-Year	196.3%	25.5%	519.3%	51.0%	42.1%	4.3%	129.8%	49.5%	258.8%	87.5%
4-Year	75.0%	31.0%	136.1%	93.5%	13.2%	11.4%	97.0%	62.8%	241.9%	95.9%
IV-D Funding:										
Yes	168.4%	43.5%	282.8%	97.0%	34.0%	11.1%	133.8%	60.0%	296.8%	100.3%
No	29.6%	2.5%	54.5%	34.0%	8.6%	1.5%	54.5%	7.3%	122.6%	29.6%
Unemployment:										
High	202.1%	28.0%	329.2%	53.0%	12.0%	6.7%	87.7%	36.2%	176.4%	66.9%
Low	54.2%	26.0%	111.6%	61.5%	43.3%	9.9%	140.8%	56.6%	334.9%	94.4%
Program Age:										
Old	51.2%	17.5%	93.7%	50.0%	10.6%	9.9%	50.8%	37.4%	108.8%	65.2%
New	428.6%	108.0%	662.6%	230.0%	58.0%	15.0%	219.5%	97.4%	494.8%	150.5%
Overall Change:	131.0%	26.0%	171.3%	58.0%	27.6%	9.9%	113.4%	53.3%	250.3%	87.8%

Because many co-op programs are small in size, a relatively modest increase in absolute enrollment may represent an extremely large percentage increase; e.g., a new program which grows from five students in 1973-74 to 100 students in 1975-76 would have a growth rate over that period of 1900 percent. Since a small number of such extreme cases (or outliers) can drastically affect the mean, these average percentage increases in enrollment must be interpreted with a great deal of caution. For this reason, a number of alternative measures are presented, which may more clearly and accurately reflect the typical changes which have and may be anticipated to occur in co-op enrollment patterns.

As Table 3.19 shows, the mean changes are much larger than the medians of both the actual past and expected future percentage increases in enrollment. This would indicate that while a few, generally small, co-op schools may have made dramatic increases in enrollment, the typical school has shown and projects a much more modest level of growth. While the table shows that from 1973 to 1975 the average enrollment has more than doubled, specifically an increase of about 171 percent, the typical school has grown by only 58 percent (as reflected by the corresponding median). Similarly, while the mean shows an expected increase in five years (by 1980-81) of 250 percent, the typical school anticipates an enrollment of slightly less than double its present size (an 88 percent increase). For these reasons, the following table, 3.20, may represent the best picture of co-op growth and growth potential. This table presents mean percentage changes in co-op enrollment with the outliers removed. This enables not only more likely growth predictions (as shown by the medians in Table 3.19), but also allows for statistical tests of differences in growth by type of institution not affected by the few small programs with overly high percentage increases in enrollment. In this table, the only significant differences are between new and old programs. As would be expected, new programs have grown and anticipate continuing to grow at a faster rate than older programs (those initiated prior to 1973).

TABLE 3.20: PROPORTIONAL CHANGES IN CO-OP ENROLLMENT
(with outliers removed)

Time Period

	Past		Future Projections		
Characteristic	1973-74 to 1974-75	1973-74 to 1975-76	1975-76 to 1976-77	1975-76 to 1978-79	1975-76 to 1980-81
Type of Institution:					
2-Year	91.8%	127.7%	9.0%	70.8%	127.4%
4-Year	75.0%	136.1%	13.2%	97.0%	241.9%
IV-D Funding:					
Yes	102.7%	160.8%	12.0%	94.6%	209.1%
No	29.6%	54.5%	8.6%	54.6%	122.6%
Unemployment:					
High	109.9%	152.8%	12.0%	87.7%	176.4%
Low	54.2%	111.6%	10.2%	80.1%	196.7%
Program Age:					
Old	51.2%	93.7%	10.6%	50.8%	108.8%
New	211.4%*	275.9%*	12.2%	143.1%	324.7%
Overall Change:	82.6%	132.2%	11.1%	84.1%	185.7%

*Statistically significant at 95 percent level of conficence

Finally, as shown in Table 3.21 below, these actual and anticipated increases represent relatively small changes in terms of the absolute number of students involved. The average increase over the past two years reflects an additional 92 students per IHE (with a median of 52). Also, the expected growth in the next 5 years is about 252 students with a median of approximately 142 expected additional students.

If these anticipated growth rates are reasonable, we could make the following projections about the national potential for expansion of enrollment in cooperative education. Since the expected growth of 252 students per program by 1980 corresponds very closely to the actual two year growth from 1973-74 to 1975-76 of 92 students, we feel these projections will not be unrealistic. In making these projections, we have also drawn on data concerning the number of co-op programs nationwide collected by the Cooperative Education Research Center at Northeastern University.[1/]

On an overall basis and if no new co-op programs were started then we could expect an average program to grow from 378 (the average present size in our sample) to 630 students. Using the Northeastern estimate of 1,017 co-op programs currently in existence, then in 1980 these would be just over 640,000 students enrolled in programs of cooperation education throughout the United States. While the Northeastern study shows the growth in the number of new programs to be declining significantly, it is not clear that their hypothesis that the number of programs may stabilize at about the current 1,000 is correct. If instead new program development continued at the most recent year's pace of 6 percent, then we could expect nearly 1,300 co-op programs nationally in 1980. Since IV-D has been highly effective in encouraging the growth of new programs, and since it would

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[1/] Brown, Sylvia J. and Wilson, James W. "Survey of Cooperative Education, 1976," Journal of Cooperative Education, XIII, November 1976, 57-65.

TABLE 3.21: ABSOLUTE CHANGES IN CO-OP ENROLLMENT

	Time Period									
	Past				Future Projections					
Characteristic	1973-74 to 1974-75		1973-74 to 1975-76		1975-76 to 1976-77		1975-76 to 1978-79		1975-76 to 1980-81	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Type of Institution:										
2-Year	94.4	22.5	90.9	69.0	-17.2	6.5	79.6	55.5	189.4	134.0
4-Year	67.4	25.0	93.1	45.0	31.7	19.5	149.2	75.5	313.9	200.0
ID-D Funding:										
Yes	88.9	30.5	141.7	70.0	55.6	10.0	177.1	82.5	338.6	212.5
No	101.3	10.5	-2.0	30.5	-133.5	5.0	-65.3	37.0	30.0	72.0
Unemployment:										
High	127.1	25.0	114.0	64.0	12.1	20.0	129.3	75.0	266.4	134.0
Low	26.3	24.0	67.5	41.5	2.7	9.2	98.5	65.0	234.9	202.0
Program Age:										
Old	88.1	22.0	94.7	52.0	13.7	10.5	133.0	75.0	279.4	115.5
New	55.4	31.5	89.5	72.0	-5.1	7.5	81.1	62.0	201.4	199.5
Overall Change:	80.4	24.5	92.0	52.0	7.2	10.5	114.4	65.5	251.7	141.5

appear that under the new legislation the Federal effects should be at least as effective, then continued growth in the number of new programs would seem to be a reasonable assumption. This would not only represent an additional 30,000 students in 1980 (given the average size of a new program to be about 100 as shown by our data), but would also represent an even greater potential increase in enrollment as they continued on the typically rapid growth path of most newer programs. Nevertheless, this would still represent less than 10 percent of the approximately 10 million students enrolled in institutions of higher education. Thus, even if college enrollments overall decreased sharply, co-op in institutions of higher education is far from a saturation point.

A review of the data presented in these tables indicates the following:

- The projected increases in enrollment in both IV-D and non-IV-D schools are not as great as those experienced in the past over comparable time periods. However, this decline in the growth rate may be due to the fact that these co-op programs are more firmly established now and the growth in enrollment will not be as great as it was when they were first starting up.

- Although the projected growth rate of co-op enrollment in 2-year schools appears to be slightly greater than that predicted for 4-year institutions, the projected increases for both types of institutions are not as great as increases in co-op enrollment have been in past years. This, again, is likely to be due to the fact that after early increases, co-op programs which have been in existence for a considerable period of time are no longer experiencing the rapid growth of the starting-up stage of development.

- Although the overall change in co-op enrollment exhibits a declining growth rate, the projected growth of co-op enrollment is still of considerable magnitude. The lower rate of growth in co-op enrollment is likely due to the established nature of the co-op programs in the sample. These projected growth rates are, however, of an acceptable magnitude for well-established co-op programs. They indicate a continuing growth of co-op enrollment and a growing demand for co-op educational services.

5. Capacity to Absorb More Co-op Students Given Present Staff and Resources Allocated to Co-op

Co-op directors were asked how many additional students they could have or anticipate being able to accommodate over and above past or projected enrollment levels. These measures provide an indication of the capacity for co-op to expand, given the present size of co-op staff resources. In order to determine which types of institutions have the greatest excess capacity, mean absolute and relative numbers of additional students which could have been accommodated were calculated by institutional characteristics. These means were then compared with the aid of t-tests to determine if significant differences existed in excess capacity among different institutional types. No significant differences existed between IV-D and non-IV-D schools, 2-year and 4-year schools, or schools in high versus low employment areas. However, a significant difference did appear in the excess capacity exhibited by publicly- versus privately- controlled institutions. This difference, as shown in Table 3.22 below, reveals a consistently greater number of co-op students who either could have been or could in the future be accommodated by privately-controlled institutions compared to those which are publicly controlled. The difference in excess capacity may be due to the higher tuition levels in privately-controlled institutions, which might restrict the demand for educational services in privately-controlled institutions.

TABLE 3.22: ADDITIONAL CO-OP STUDENTS WHO COULD BE ACCOMMODATED IN ABSOLUTE NUMBERS AND AS A PERCENTAGE OF CURRENT ENROLLMENT

Absolute Numbers of Additional Co-op Students		
	Publicly Controlled (N=62)	Privately Controlled (N=19)
*1974-75	32.3	121.5
1975-76	56.4	145.1
*1976-77 (anticipated)	50.3	183.9
Additional Co-op Students as a Percentage of Current Enrollment		
	Publicly Controlled	Privately Controlled
1974-75	38.3%(46)	109.5%(15)
1975-76	63.1 (51)	133.4 (17)
*1976-77 (anticipated)	38.2 (60)	111.7 (17)

*Significant difference between public and private schools at the 95 percent level

Although only in this one case was there a significant difference in excess capacity in terms of institutional characteristics, it is useful to examine the overall capacity of institutions to absorb more co-op students given present resource constraints, as presented for different years in Table 3.23 below.

TABLE 3.23: CAPACITY TO ABSORB ADDITIONAL CO-OP STUDENTS

	Additional Co-op Students	
Year	Mean Number	% of Current Enrollment
1974-75	52.8	56.2% (61)
1975-76	79.3	80.6 (68)
1976-77 (anticipated)	84.4	54.8 (77)

As shown in this table, the rate of increase in the number of additional co-op students which institutions can accommodate on the average is beginning to decline. The anticipated excess capacity for 1976-77 does not exceed the 1975-76 figure by as much as the increase from 1974-75 to 1975-76. This leveling-off can probably be attributed to the fact that due to continued healthy growth in co-op enrollment, institutions have not been able to grow as rapidly in the ability to provide co-op educational services. If the past trends of a continually growing demand for co-op educational services, and the leveling-off of excess co-op program enrollment capacities once a program becomes firmly established persist, then it appears likely that most co-op programs will have to increase their program resources in order to meet the demand, unless it is met by a sufficient number of new programs.

6. Summary

A review of the forms of support solicited from various sources showed that although all types of schools were heavily involved in solicitation of support for co-op, publicly-controlled schools, those receiving IV-D funding, and those institutions located in high unemployment areas exhibited higher levels of support solicitation for co-op than did their counterparts. Among the high proportion of schools (76%) with plans for expansion, the only significant relationship revealed was that schools in low unemployment areas are more likely to be planning an expansion of co-op than those in high unemployment areas. This might be due to an expectation among schools in low unemployment areas that they will be able to place additional co-op students with greater ease. While there may be some leveling off in the rate of increase, growth in co-op enrollments is still likely to be substantial over the next few years. Actual enrollments are still increasing at a healthy rate, although no saturation point appears to be being reached. Although institutions are currently exhibiting an excess of available co-op slots, the continued growth of the demand for co-op slots may eventually exhaust the present excess capacity unless, as would be expected given the growth in the demand for co-op educational services, institutions increase the resources allocated to co-op.

B. Potential Factors Influencing Co-op to Expand

An integral component of the analysis of co-op expansion is a review of the potential factors which might influence co-op to expand.

1. Incentives Which Would Influence Schools to Expand Co-op

Almost all (95%) of the senior academic officals sampled from institutions offering co-op indicated a desire to increase the number of co-op slots in their respective institutions. The responses of these officials were cross-tabulated by institutional characteristics. However, no significant differences in the desire for expansion of the number of co-op positions were detected in any of the comparisons by institutional characteristics. Obviously, one cannot single out any types of institutions where expansion of the number of co-op slots is not desired when only three schools in the entire sample do not express any interest in increasing the number of co-op slots at the institution.

Those administrators who expressed an interest in increasing the number of co-op slots at their institutions were asked in an open-ended question to provide their motives for such an increase. The most frequently offered reasons for increasing the number of co-op slots are presented in Table 3.24 below.

TABLE 3.24 : MOST FREQUENTLY-CITED REASONS FOR INCREASING THE NUMBER OF CO-OP SLOTS AT INSTITUTIONS

Reason	Frequency
Better Student Preparation	14 (28.8%)
Opportunity for the Student to Learn About Specific Occupations	8 (13.1%)
Primarily Interested in the Students Rather than the Slots	8 (13.1%)
Further Goals of Career Education	6 (9.4%)
Philosophical Support of the Program	5 (8.3@)

The five reasons for expanding an institution's number of co-op positions, which are listed in the Table 3.24 above, account for over 65 percent of those given by the senior academic officials surveyed. Two themes are apparent throughout all of the reasons given, one related to the student and the other to the co-op program. The most frequently cited reason for expansion was to improve students' knowledge of the labor market and specific occupations. The other primary reason was because of a commitment to the nature, and goals, of the program. Both of these rationales for increasing the number of co-op positions are closely interwined. While one is student-oriented and the other is program-oriented, they both join in a common goal of better student preparation through a more diverse, career-oriented educational experience.

Given this strong interest in expanding co-op, it is therefore important to investigate what are the most important incentives to the expansion of co-op. The incentives most frequently suggested by the senior academic officials. which they felt would be important in promoting co-op expansion, are presented in Table 3.25 below.

TABLE 3.25: IMPORTANT INCENTIVES TO CO-OP EXPANSION

Incentive	Frequency
State and Federal Financial Assistance	20 (35.7%)
Increased Availability of Work Experience Positions for Co-op Students	4 (7.1%)
Awarding Students Financial Support	3 (5.4%)
A Merging of Co-op and Work Study Programs to Guarantee Funding	3 (5.4%)
Greater Amounts of Time and Money to Expand the Number of Placement Positions	3 (5.4%)

The five incentives to co-op expansion listed in the above table account for almost 60 percent of the responses received. The most frequently-expressed stimulus for co-op expansion was various unspecified forms of financial support for co-op, which was stated in over 35 percent of the cases. This indicates that there generally is a desire for additional financial support in order to expand co-op programs. However, much of the other data presented in this report indicates that the potential for expansion is great and that such incentives, even though desired, may not be required for the continued development of co-op. Since there were no significant differences in the frequencies with which the various incentives were given in terms of institutional characteristics, one must conclude that these incentives to co-op expansion are no more important at any particular type of institutions.

2. Federal Government Incentives Which Would Influence Schools to Introduce or Expand Co-op

One of the most influential stimuli to co-op can be generated by the Federal government. In order to gauge the importance attached to different potential Federal incentives for the expansion of co-op, senior academic officials from the institutions in our sample, which had previously or were currently receiving IV-D funding, were asked to rate the importance attached by their institution to various ways in which the Federal government could influence them to increase their participation in cooperative education.

Of the potential Federal incentives provided for consideration, three were considered very important by at least 60 percent of those surveyed: an extension of the funding period for IV-D funds beyond three years, an increase in the maximum allowable grant, and the provision of wage subsidies to co-op students.[1] These incentives, which were considered most important, focus on the financial considerations of co-op from both the schools' and the students' points of view. Even if not needed, the institutions' interest in both greater amounts of and a longer duration for the funding of co-op programs has already been met by the new Federal legislation in support of cooperative education. A wage subsidy to employers of co-op students would relieve their financial burden and would probably increase the number of work slots available for students enrolled in a co-op program. This might be useful in those areas, such as liberal arts and health, where the cost-effectiveness of co-op is not assured. It would also benefit the institutions by making it feasible for more students to enroll in co-op.

The frequencies with which the potential Federal incentives were mentioned were also compared by institutional characteristics. Only one significant relationship was found. In 4-year institutions, greater importance was assigned to providing tuition subsidies to co-op students than in 2-year schools. This difference is most probably a function of the higher level of tuition in

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[1] While the respondents were not asked to specify the exact nature of such a wage subsidy, we assume that what they intended was that some proportion of the wages currently paid by employers to students for their co-op work experience be subsidized by the Federal government as is done in the College Work-Study Program. Current legislation specifically precludes use of funds from cooperative education grants for this purpose (see Section 801(c) of Title VIII of the Higher Education Act, as amended by P.L. 94-482).

4-year schools than in 2-year schools. No significant differences were found in the degree of importance assigned to other Federal incentives for co-op expansion.

In order to fully assess the potential impact of Federal incentives on the expansion of co-op, one must also examine the importance attached to these incentives by institutions which do not currently have co-op programs. The two incentives which were assigned the greatest importance by such institutions were providing wage and tuition subsidies to co-op students. Both of these incentives focus on developing a high level of student interest in co-op participation. These incentives would significantly decrease students' opportunity costs of participating in co-op. As in the case of co-op schools, the 4-year non-co-op institutions also assigned greater importance to providing tuition subsidies to co-op students than did the 2-year schools. Similarly, private institutions assigned greater importance to this incentive is no doubt due to the higher tuition in 4-year and private institutions. All of the other incentives were assigned relatively similar degrees of importance by the various types of institutions. This indicates that all types of institutions which do not currently have a co-op program would be equally influenced by most Federal incentives, with the incentives designed to increase student participation being more important in schools with higher tuition fees.

3. Expected Changes in Co-op Programs After IV-D Funding Has Ended

Co-op education directors were surveyed to determine what changes were expected as a result of the termination of IV-D funding. Only at three schools was it felt even possible that co-op would be dropped as a result of the termination, while 34 percent of the sample felt that it would be expanded, and about half (49%) felt it would continue at the same size. This obvious commitment to co-op was substantiated by the fact that 71 percent of the directors stated that institutional funds would be subsituted for IV-D funds. Although it was felt that co-op was more likely to expand in 4-year schools than in 2-year schools, both revealed a high level of commitment to co-op with 81 percent of the 4-year institutions indicating that institutional funds would be substituted for IV-D funds and 60 percent of the 2-year schools indicating such a substitution of funds. These findings show a strong commitment to co-op and a strong belief in its continued expansion. Although IV-D funding is crucial to the introduction of co-op, its termination is not felt to be a barrier to the continued expansion of and commitment to co-op.

As a check on the forecasted changes resulting from the termination of IV-D funding, directors of co-op programs in the seven institutions where it had already been terminated were surveyed concerning the effects. In 4 schools, or 57 percent of these cases, the co-op program was expanded, and in the same percent institutional or other funds were substituted for IV-D funds. While it is clearly too early to have any definitive answers, it does not appear that the limited term of IV-D funding has an adverse effect on the expansion of co-op, since in a high proportion of the sampled cases, co-op continued to expand. While the data do not indicate it was necessary, the extension of IV-D funding from three to five years may be useful in cases such as the two schools in this sample which had to cut back on staffing when IV-D funding ended.

4. Summary

The two primary concerns of institutions desiring to expand the number of co-op positions are the cultivation of more work experience positions for co-op students and the availability of co-op funding. Although IV-D funding was observed to have an impact during the developing stages of a co-op program, it does not appear to be necessary for continued expansion or institutional commitment. In addition to the institutional financial considerations affecting co-op, incentives which would promote student participation are considered useful. These incentives can be viewed from either the institutional or the student perspective. Institutional officials view tuition and wage subsidies for students as among the more important incentives to co-op expansion. This would make co-op more appealing to students because of the reduced opportunity cost of their participation. From the student perspective, as discussed elsewhere in this report, improved employability after graduation and the financial aid aspect of co-op participation provide important incentives for many types of students. However the cost-benefit results, presented in Chapter 2, indicate that subsidies are, in most cases, probably not necessary.

C. Factors Hampering Further Expansion of Co-op

The evaluation of factors hampering the expansion of co-op draws upon data reflecting the various points of view of the participants in co-op. Institutions provided insight into the factors which act as the greatest barriers to either implementing or maintaining co-op, and faculty members have provided insight into what role the institution and its faculty play in the expansion of co-op.

1. Reasons for Institutions not Having Co-op

The senior academic officials from the 16 institutions in the sample not currently having co-op were asked why their institutions did not have cooperative education. The most frequently cited reasons for schools not having co-op are presented in Table 3.26 below.

TABLE 3.26: MOST FREQUENTLY CITED REASONS FOR SCHOOLS NOT HAVING COOPERATIVE EDUCATION

Reason	Frequency	Percent
Acquisition of Funds	5	31.3
Traditionally a Liberal Arts College	5	31.3
Lack of Familiarity With the Program	2	12.5

As shown in the above table, the most frequently cited reasons for an institution not having co-op focused on financial limitations, not being oriented to co-op, and a lack of familiarity with it. These accounted for 75 percent of the responses given. These constraints on an institution's ability to offer co-op were compared by institutional characteristics, but no significant differences were detected. Therefore, these negative influences on the expansion of co-op to additional institutions affect all institutitons to an equal degree. However, the impact of these constraints can be diminished. More funds can be made available to institutions, and they can be made aware of the potential sources of financial support for co-op. Liberal arts institutions can be informed of the extent to which co-op can be integrated into their various discipline areas. Over time, institutions will become more knowledgeable of the workings of co-op and how it can be integrated into different discipline areas. The sole problem remaining is availability of funds for co-op. The degree to which this frequently cited constraint on the development of institutions' co-op programs is overcome will be reflected in the extent to which additional institutions are able to initiate new co-op programs in the future.

2. Intra-institutional Obstacles to Co-op Expansion

A potential obstacle to co-op expansion is that the institution's administration may make little or no effort to get faculty involved in co-op. To determine if this obstacle is more prevalent in certain types of institutions or discipline areas, response frequencies were compared by institutional characteristics and between discipline areas. However, no significant differences were observed in the effort made by the various administrations to get faculty members involved in cooperative education.

Although there were no differences in the degree of effort exerted by top level administrations to get faculty members involved in co-op, the results of the overall sample do indicate a high level of commitment to co-op, as shown in Table 3.27 below.

TABLE 3. 27 : DEGREE OF EFFORT EXERTED BY TOP LEVEL ADMINISTATION TO PROMOTE FACULTY INVOLVEMENT IN CO-OP

	Frequency	Percent
Strong Effort	87	39.5
Some Effort	109	47.3
No Effort	29	13.2

As shown in the above table, only 13.2 percent of the faculty members surveyed from the sample of institutions indicated that no effort had been exerted by the administration to get them involved in co-op. However, almost 40 percent of those surveyed felt that a strong effort had been made by the administration to promote faculty participation in co-op. These findings reveal a strong commitment to co-op by top-level administrators which is universal among all types of institutions, and that lack of effort by administrators to get faculty involved does not present a barrier to co-op expansion.

One can gain additional insight into factors acting as potential obstacles to co-op expansion by reviewing the reasons cited by non-co-op faculty for not participating in co-op, other than teaching. The various reasons for lack of participation are presented in the following Table 3. 28.

TABLE 3. 28: REASONS FOR LACK OF FACULTY PARTICIPATION IN CO-OP OTHER THAN TEACHING

Reason	Frequency	Percent
Have not been asked to participate	71	34.0
Do not have the time	48	23.0
Co-op program is adequately staffed already	52	24.9
Do not have the necessary skills to do other co-op-related duties	18	8.6

As indicated above, the most frequently cited reason for lack of faculty participation is that the faculty member had not been asked. Co-op has generally not been promoted among faculty members who do not participate in co-op in a manner other than teaching. The second most frequently cited reasons are the fact that the co-op program is already adequately staffed, and lack of time. Although lack of the necessary skills to perform other co-op-related duties was occasionally cited, it does not appear to be a major factor. These reasons for lack of co-op participation were compared by institutional characteristics and among discipline areas, but only one significant difference was found. It was observed that faculty members in the health professions stated that the co-op program was already adequately staffed more often than do faculty members in the other discipline areas. Thus, it does not appear that faculty resistance is acting as a barrier to expansion of co-op, since the reasons for non-participation are primarily related to lack of need or recruitment by the institution.

Other intra-institutional obstacles to the expansion of co-op can be identified by reviewing faculty members' assessments of the possible disadvantages of co-op to determine how favorably different aspects of co-op are viewed at different types of institutions and in different discipline areas. These views provide an indication of whether the faculty will exert a positive or a negative influence on the expansion of co-op.

The following statements and the implications of the faculty members' views concerning them are presented below:

- A high proportion, over 75 percent of the co-op faculty and almost 70 percent of the non-co-op faculty, indicated a belief that a college education should be career-oriented. Co-op faculty in the business and management and health professions discipline areas felt this most strongly. The high proportion of both co-op and non-co-op faculty supporting the view that a college education should be career-oriented negates any barrier to the expansion of co-op which a negative viewpoint might indicate.

- High proportions of both the co-op and non-co-op faculty members surveyed felt that faculty should be directly involved in job placement activities. Over 75 percent of the co-op faculty members and over 62 percent of the non-co-op faculty members supported this view. However, both co-op and non-co-op faculty in the health professions discipline area stated more frequently than their counterparts in other discipline areas that faculty members should not be directly involved in job placement activities. This represents a potential limiting factor to co-op expansion in the health professions discipline area. However, in general, faculty members felt that they should participate in job placement activities. This support of job placement activities provides a positive influence for co-op expansion.

- Almost 80 percent of co-op faculty members and nearly 70 percent of non-co-op faculty members surveyed stated that they felt the jobs which co-op students get after graduation are better than those which other students get. Although co-op faculty in four-year institutions and non-co-op faculty in the engineering/architecture discipline area were more strongly in support of this view than their counterparts, it was generally supported by all faculty members. This view provides an indication of faculty support of co-op, and could provide an underlying stimulus for co-op expansion.

- Only a small percentage, less than 16 percent of the co-op faculty members and less than 7 percent of the non-co-op faculty members surveyed, stated that co-op does not allow them to teach full-time. The implication here is that the work requirement for faculty members as a result of their participation in co-op would not act as a barrier to co-op expansion.

- Over 95 percent of those surveyed in the case of both co-op and non-co-op faculty supported the view that students benefit from work experience related to their majors. This implies that co-op has a broad base of support among faculty members. Their support of this view provides an indirect indication of the high levels of support for co-op among faculty members in all types of institutions and discipline areas.

- A high proportion of both co-op and non-co-op faculty felt that it does not detract from a student's studies to be involved in alternate periods of full-time study and work. This view was supported by nearly 80 percent of the co-op faculty members and by almost 70 percent of the non-co-op faculty. Since this view did not differ in the degree of support provided by faculty in different types of institutions or different discipline areas, it is apparent that the alternating nature of certain formats for co-op does not act as a barrier to the expansion of co-op to additional institutions or discipline areas.
- Both co-op and non-co-op faculty supported the belief that it does not detract from a student's studies to be involved in parallel periods of full-time study and work. Although this view was supported by over 80 percent of the co-op faculty and by over 70 percent of the non-co-op faculty, it was supported more strongly by co-op faculty members in the trade and industrial discipline area than by those in other areas. This is to be expected because of the parallel format of co-op programs in the trade and industrial discipline area. In general, the parallel nature of some co-op programs does not represent an obstacle to institutional or discipline area expansion of co-op.

The factors affecting co-op discussed above indicate that faculty participation does not represent a significant barrier to co-op expansion. The feelings exhibited by faculty members about various aspects of co-op such as its structure, its career orientation, the job placement role of co-op faculty, and the impact of co-op participation on students indicate a strong support of co-op on both the institutional level and in different discipline areas.

3. Sources of Difficulty in Implementation and Maintenance of Co-op

Sources of difficulty in both implementing and maintaining a co-op program can be identified as potential obstacles to the further development of co-op. The following table (3.29) contrasts the degrees of difficulty which co-op directors in the sample associated with several activities involved in implementing and maintaining a co-op program.

TABLE 3.29: DEGREE OF DIFFICULTY EXPERIENCED BY INSTITUTIONS IN IMPLEMENTING AND MAINTAINING COOPERATIVE EDUCATION

	Great Deal of Difficulty		Some Difficulty		Little Difficulty	
	Implementing	Maintaining	Implementing	Maintaining	Implementing	Maintaining
Acquiring funds to support co-op	16%(13)	29%(26)	37%(30)	41%(37)	48%(39)	30%(27)
Persuading faculty to participate	19%(16)	6%(5)	50%(43)	37%(33)	31%(27)	58%(52)
Recruiting students to participate	11%(10)	3%(3)	40%(35)	29%(26)	48%(42)	67%(60)
Recruiting employers to participate	23%(22)	18%(16)	46%(40)	51%(45)	31%(27)	31%(28)

As shown in the table, the most frequent source of difficulty in the implementation of a co-op program is recruiting employers to participate in co-op, although even this was indicated as posing a great deal of difficulty by less than one-fourth of the schools. The difficulty of this task decreases only slightly later in the maintenance phase. The acquisition of funds during the implementation of a co-op program does not present an obstacle to co-op development. However, the acquisition of funds to support co-op does pose a somewhat greater problem later on in maintaining a co-op program. Persuading faculty to participate and recruiting students to participate in co-op pose minor obstacles to the implementation of a co-op program, and they subsequently become even less of a barrier in the maintenance of co-op programs.

While in general none of these activities present major difficulties to co-op development, one must examine the level of difficulty experienced by different types of institutions in implementation and maintenance. These comparisons by institutional characteristics reveal two significant relationships. The primary differentiating characteristic was whether a school was a 2-year or a 4-year institution. The 4-year schools experienced greater difficulty in acquiring funds to support co-op during the implementation of a co-op program than did 2-year institutions. Four-year institutions also experienced greater difficulty in persuading faculty to participate in co-op during both the implementation and the maintenance of co-op programs. While it was shown previously that persuading faculty to participate in co-op does not represent a formidable barrier to either the implementation or the maintenance of a co-op program, it is an obstacle which hampers the efforts of 4-year institutions more severely than those of 2-year schools

The other relationship which was observed was that institutions in States with low unemployment tend to experience greater difficulty in the recruitment of students to participate in co-op during the implementation of a co-op program than do institutions in high unemployment States. In areas of low unemployment, students are more likely to find employment. Therefore, participation in co-op represents a greater opportunity cost to students in these areas than to students in high unemployment areas where, because of the lack of employment opportunities, participation in co-op does not have the high opportunity cost of foregone income associated with it. While the recruitment of students to participate in co-op is a problem with an intensity that diminishes as a co-op program becomes more firmly established, it does represent a greater obstacle to the implementation of co-op programs in institutions in States with low rates of unemployment.

Although the previously cited problems represent relatively minor obstacles to co-op development during the implementation stage for most institutions, they are more serious for certain types of institutions than others. The sources of difficulty which are more likely to continue to occur in co-op programs after they are established are the acquisition of funds to support co-op and the recruitment of employers to participate in co-op.

IV. ANALYSIS OF THE NATIONAL POTENTIAL FOR EXPANSION OF EMPLOYER UTILIZATION OF CO-OP GRADUATE MANPOWER

The market for co-op graduate manpower is only a subset of the larger labor market which includes non-co-op graduates as well. The rationale for examining the market for graduates rests on the assumption that the market for graduate manpower impacts back upon student demand for co-op educational services. While the concern in this study is on the increase in co-op relative to non-co-op enrollment rather than on college enrollment in general, overall college enrollment trends may also impact significantly upon co-op expansion. As shown by the sample data, institutions and discipline areas with larger enrollments tend to have greater numbers of students enrolled in co-op. If one assumes that a relationship exists between the market for graduates and institutional enrollment levels, the relationship between the market for graduate manpower and co-op expansion becomes readily apparent. The more favorable the market for graduate manpower is, the greater the number of students who will be enrolled in co-op, and hence, the greater the potential for co-op expansion.

A. Analysis of the Market for Co-op Graduate Manpower From the Employer Perspective

The analysis of the market for co-op graduate manpower is composed of two parts. They both relate to the co-op employer. The first is an assessment of the rate at which co-op employers hire co-op students as permanent employees. This information, which was provided by co-op employers, will provide an indication of the nature of a large segment of the market for co-op graduate manpower. The other component of the analysis concerns the relative productivity of permanent co-op employees as opposed to other employees. To the extent that permanent co-op employees are more productive than other permanent employees, the market position of co-op graduates will be enhanced relative to the market of non-co-op graduates.

1. Employment Rate of Permanent Co-op Employees

In order to assess the market for co-op graduates from the employer perspective, co-op employers were asked what percent of their undergraduate co-op student/employees typically become permanent employees in their firm upon graduation.

Co-op employers indicated, on average, that just over 37 percent of their undergraduate co-op student/employees typically became permanent employees in their firms upon graduation. To determine if the level of undergraduate co-op acceptance by co-op employers for permanent employment is a function of the nature of the firm, whether the firm hires 2-year or 4-year undergraduate co-op students, or how long a typical undergraduate co-op student is employed by the firm, acceptance rates were calculated by these characteristics and compared to determine if statistically significant differences existed. Four statistically significant relationships, which are discussed below, were revealed:

- Large sized firms typically hire a larger percentage of their undergraduate co-op student/employees as permanent employees upon graduation. As reported in Chapter 2, finding permanent employees is considered a more important benefit for larger firms and is likely much of their motivation for participation in co-op.
- Unionized firms typically hire a larger percentage of the undergraduate co-op student/employees employed by them as permanent employees upon graduation. This indicates that the market for co-op graduate manpower among unionized firms is superior to that among firms where a union is not present.

- Firms located in areas experiencing low levels of unemployment typically hire a larger proportion of their undergraduate co-op employees upon graduation than do firms in high unemployment areas. This confirms that, as expected, the market for co-op graduate manpower among firms in areas experiencing low levels of unemployment is more favorable than among firms in areas of high unemployment.
- The percentage of undergraduate co-op student/employees who become permanent employees is greater among firms where undergraduate co-op student/employees spend longer periods of time in co-op training period increases, and firms are likely to hire an increasing proportion of undergraduate co-op student/employees as permanent employees. These findings are indicative of a more favorable market for co-op graduate manpower among firms where the co-op training period lasts for relatively longer periods of time.

An additional indicator which relates to the employment of co-op graduates is provided by the number of co-op employers who employ co-op graduates from other co-op programs and the average number of those graduates which they employ. These measures provide an additional indicator of the nature of the market for co-op graduate manpower by examining a segment of the market which is separate from the previous analysis.

Over 34 percent of the co-op employers surveyed stated that they employed graduates from other co-op programs. This indicates that even if co-op graduates are not hired by the employer where they underwent their co-op work experience, they may be able to gain employment with other employers who value co-op experience. The response frequencies of employers to this item were also compared by the background characteristics of firms. Two significant relationships were observed. It was revealed that a significantly greater number of large firms currently employed graduates of other co-op programs as compared to smaller firms. Also, it was revealed that a significantly greater number of unionized firms currently employed co-op graduates from other programs as opposed to firms where a union was not present. This reaffirms the more favorable nature of the market for co-op graduate manpower among larger and unionized firms.

The mean number of co-op graduates from other programs who are employed by the co-op employers sampled was analyzed by the firms' background characteristics, but no statistically significant differences among the means were found. Among those employers who currently employ co-op graduates from other programs, they employ an average of slightly more than 15 such co-op graduates.

The analysis of employer acceptance of co-op graduates for permanent employment seems to indicate that co-op graduates may have some edge over non-co-op graduates in finding permanent jobs after graduation. When the two segments of the market, consisting of the employment of co-op graduates by the firms where they participated in co-op as undergraduates and the employment of graduates from other programs are considered jointly, they imply that the co-op graduate may often have additional sources of permanent employment that are not available to the non-co-op graduate.

2. Relative Productivity of Permanent Co-op Employees

The second component of the analysis of the market for co-op graduate manpower focuses on the relative productivity of permanent co-op employees as opposed to other employees. The co-op employers' views on this issue will provide an indication of the desirability of hiring co-op graduates as opposed to others without co-op experience. To the extent that co-op graduates are considered more productive by employers, the market position of co-op graduates will be superior to that of others who did not participate in co-op.

In order to assess the relative productivity of permanent employees who had been undergraduate co-op students as compared to other employees holding similar positions, the employers surveyed were asked to rate their respective productivities. Over 60 percent of the employers surveyed stated that permanent employees who had been undergraduate co-op students were more productive. Only 1.8 percent of the employers sampled felt that permanent employees who had been undergraduate co-op students were less productive. Also, the relative productivity ratings given by firms to permanent employees who had been undergraduate co-op students were compared by the background characteristics of the firms surveyed. However, no statistically significant relationships between the nature of the firm and the relative productivity measures assigned to permanent employees who had been undergraduate co-op students were observed. These findings indicate that the higher relative productivity of permanent employees who had been undergraduate co-op students as compared to other employees holding similar jobs is a view shared by all types of firms. The implication is that employers will be more likely to hire co-op graduates, in order to reap the benefits of this relatively higher productivity, as opposed to other applicants who lack co-op experience. Among employers who felt co-op graduates were more productive, the specific attributes they felt contributed to this included:

- Permanent employees who were undergraduate co-op students are more motivated and conscientious.
- Their previous co-op experience makes permanent employees who participated in co-op more well rounded. This contributes to the more rapid progress which they make in adjusting to the operations of the firms.
- The superior skills and knowledge which these employees possess enables them to learn the operations of the firm and function with greater ease.

Although the attributes cited above are of a subjective nature, they reveal why permanent employees who participated in co-op are judged to be relatively more productive than those who did not. In general, their previous experience initially places them in an advantageous position from which they can progress at a faster rate than permanent employees who did not participate in co-op. This differential makes the employment of individuals who have participated in co-op a more desirable alternative for employers, and thus contributes to the favorable nature of the market for co-op graduate manpower and ultimately to the continued development and expansion of co-op.

An additional indicator of the relative position of co-op graduates in the employment market is provided by the employers' weightings of how much influence co-op work experience would exert in a typical hiring situation. Employers were asked to indicate how much weight would be assigned to co-op work experience in two different types of hiring situations. One situation involves recent graduates, while the other involves graduates who have accumulated 3 years of subsequent work experience. The responses of the sampled employers are presented in the following Table 3. 30 .

TABLE 3. 30 : EMPLOYER WEIGHTINGS OF GRADUATES' CO-OP EXPERIENCE IN A HIRING SITUATION

	Prospective Hirees			
	Recent Graduates		Graduates With 3 Years of Subsequent Experience	
Degree of Importance Assigned	Frequency	Percent	Frequency	Percent
Very Important	142	61·7	76	33.8
Somewhat Important	71	30.9	77	33.3
Unimportant	17	7.4	78	32.9

As seen in this table, employers give considerable weight to co-op experience in hiring decisions which involve recent graduates. Only 7.4 percent of the employers stated that whether or not a recent graduate had participated in co-op did not play an important role in their hiring decisions. On the other hand, over 61 percent of the employers surveyed indicated that whether or not a recent graduate had participated in co-op exerted a very important influence in their hiring decisions. A comparison of response frequencies by the background characteristics of the firms surveyed revealed no statistically significant relationships between the nature of the firm and the degree of importance it assigned to co-op experience in hiring decisions concerning recent graduates. Given the large percentage of firms, over 92 percent, which give at least some weight to whether an applicant participated in co-op as a student in their hiring decisions concerning recent graduates, the market for co-op graduate manpower appears to be relatively favorable.

Firms were also surveyed concerning the degree of importance which previous co-op participation played in their hiring decisions involving graduates with 3 years of subsequent work experience. As shown in the table above, nearly 33 percent of the employers stated that whether a prospective hiree had participated in co-op was not an important factor in their hiring decisions in this situation. This, combined with the smaller proportion of employers who cite co-op participation as an important factor in hiring decisions involving graduates with three years of subsequent work experience as compared to those decisions involving recent graduates, implies that the market advantage which recent graduates experience as a result of their co-op experience is diminished over time. Therefore, recent co-op graduates may experience a more favorable market for graduate manpower as a result of their previous participation in co-op, although this advantageous position is somewhat diminished over time as both they and non-co-op graduates accumulate relevant work experience.

3. Summary

The high proportion of undergraduate co-op student/employees who are hired by their employers upon graduation and the high percentage of employers who currently employ co-op graduates from other co-op programs imply that co-op graduates may often have an advantage over the non-co-op graduate in finding permanent employment after graduation. This is particularly so, in both cases, among large firms and firms which are unionized. The relatively more productive character of permanent employees who were previous participants co-op as opposed to those who were not makes it more desirable for employers to hire co-op graduates than other applicants. This contributes to a favorable market for co-op graduate manpower. Finally, the high proportion of employers who state that whether a prospective employee participated in co-op exerts a strong influence in their hiring decisions involving recent graduates also reflects an advantage in the job market for co-op graduates. The implication of all of these measures is that from the employer perspective, the market for co-op graduate manpower will not inhibit the future expansion and development of co-op.

V. SUMMARY

Overall, it seems clear that cooperative education is in a very healthy state and has excellent potential for continued growth and expansion. The participants are generally receiving a high level of benefit because of co-op, and there seems to be little in the way of factors which might hamper future growth and development.

In the following paragraphs we will review the position of each of the participants and then discuss the potential interactive effects of expansion upon the total co-op system.

First, from the evidence both in this chapter and in the cost-benefit analysis chapter, it appears very clear that employers who participate in co-op receive a substantial level of benefit, both in terms of a net financial gain as well as several other important qualitative benefits to their firms. The vast majority of employers find that hiring co-op students provides them with workers who are substitutable for regular workers. Over 80 percent of the employers surveyed felt that co-op students were as good or better than regular employees in terms of the quality of their work, and just under 80 percent felt they were at least the equal of regular workers in terms of the quantity of work. Thus, in general, employers participating in co-op are, at the least, coming out even since the co-op students are productive workers. However, most employers are also receiving other substantial benefits. Many employers, especially among the smaller firms, find they can hire the co-op students for less money than they would have to pay a regular employee. While larger firms are more likely to pay co-op students the same wages as a regular employee, they in turn are more likely to benefit significantly from the use of co-op as an effective means of finding potential permanent employees. Additionally most employers of all types feel they receive important benefits in the form of enhanced community relations and improved communications with schools that then better understand the needs of business. As has been reported in this chapter, the employers who are currently participating in co-op are very favorably disposed towards their involvement with this form of education and, in fact, substantial proportions (41 percent) presently plan to expand the extent of their participation. Furthermore, those employers surveyed who did not participate did not appear to be negative toward co-op in general. In fact, many of their reasons for participating indicated that, with increased dissemination of information about the nature of co-op and its benefits, there would be substantial numbers of them that would become participants. Actually, 62 percent of the non-co-op employers surveyed said they would consider hiring co-op students within the next year or two. Thus, the employer component of the co-op system appears to be very healthy and capable of handling a significant amount of growth of cooperative education.

In terms of the student component of the co-op system, again the evidence indicates that most students who are in co-op programs are receiving significant benefits from their participation and are extremely positive in their attitudes towards cooperative education. While there were mixed results for the 2-year programs, in all the 4-year program comparisons available it was shown that the lifetime net benefit stream was higher for co-op than non-co-op graduates. Also, co-op provided many other substantive benefits to both 2-year and 4-year participating students. Co-op serves as an extremely effective student financial aid mechanism. The student net income figures while in college were significantly higher for every co-op category than for the corresponding non-co-op category. Also, as discussed in several chapters of this report, students who participated in co-op received other non-pecuniary benefits such as enhanced career preparation and development. Additionally there were no particular subsets of students who were significant unlikely to be potential pariticpants. Finally, the reasons given by students for not participating were generally not hostile towards co-op, and with expanded dissemination of the benefits of co-op, large numbers of these students should be easily able to be encouraged to fill any expansion of co-op openings in postsecondary institutions.

At present, it appears that the institutions are the weakest link in the co-op system. Without outside funding, only the very large programs can be operated at a cost comparable to that of more traditional forms of education. However, with the present sources of outside funding, most programs can be operated in a cost-effective manner. And in fact most of the institutions in our sample (76 percent) stated that they planned to expand the number of co-op slots they offered. Given our cost-benefit results showing that larger co-op programs are much more cost-effective, this should provide increased encouragement to the expansion of co-op on the part of the IHE participants.

Finally one must consider what will be the interactive effects of expansion on the part of any one component or the other participants. While this study does not have the data to provide any definitive evidence on this issue, most of the evidence indicates that co-op would still provide significant benefits to the participants even if it were expanded. While at some point expansion would lead to diminishing marginal benefits, co-op is still too small a component of higher education for any forseeable expansion to have any noticeable impacts of this sort. For example, even in the well-developed area of engineering, the co-op graduates are still far too small a proportion of the total for expansion to substantially reduce the greater rates of return as compared to non-co-op that were found by this study. According to the Northeastern Survey of Cooperative Education[1] there were reported to be an estimated 21,635 co-op students enrolled in engineering. Since these area enrollment figures accounted for 70 percent of the total known enrollment within the 71 percent sample of all programs from which data were collected then, by extrapolation, the overall figure could be estimated at about double this number. If we assume that one-fourth of these graduate each year (while some of these are in 2-year programs, many others are in 5-year programs), then there would be approximately 10,000 co-op engineering graduates annually. According to the 1975 Digest of Education Statistics there were over 70,000 engineering degrees conferred in the U.S. during the latest year reported (1972-73).[1] Thus even in this oldest and most well-developed field, co-op graduates form only a small proportion of the total and their advantages in the market for graduate manpower should be maintained.

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[1] Op. cit., page 62.

Thus overall it appears that even with the current and anticipated levels of growth, none of the participants seems to be nearing a saturation point; i.e., the pools of potential institutions, students and employers are not close to being depleted, and that the marginal benefits of cooperative education to each of the participants can be maintained.

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[1] National Center for Education Statistics, Digest of Education Statistics, 1975 Edition; Washington, D.C.: U.S. Government Printing Office, 1976, pg. 115.

4

ASSESSMENT OF THE EFFECTIVENESS OF FEDERAL FUNDING

The prime objective of this portion of the study is to gather baseline data on the Federal role in the support of cooperative education (co-op) programs and to determine the impact the Title IV-D program has had on the form and structure of cooperative education as it exists in institutions of higher education (IHE). The basic enabling legislation responsible for this program is Title IV-D, sections 451, 452, and 453 of the Education Amendments of 1968 (PL 90-575), amended in 1972 by PL 92-318, of the Higher Education Act of 1965 (PL 89-329). While funds for co-op programs are derived from various titles under the Higher Education Act (HEA), from the Vocational Education Act (VEA), and from local and state appropriations, this study focuses exclusively on examining the ramifications of Title IV-D of HEA.

The overall legislative purpose behind the Federal IV-D appropriations is to provide stimulus and support to cooperative education at the college level. In 1975 HEW published their interpretation of cooperative education under the Higher Education Act (PL 92-318). HEW defined cooperative education as "that kind of career education that provides an opportunity for full-time students to alternate periods of academic study with periods of off-campus employment". Additionally HEW stipulated "that these periods should be of sufficient duration to provide meaningful classroom and off-campus experiences". Furthermore, "cooperative education gives students an opportunity to earn funds that may be needed to support and complete their education", and "gives them off-campus experiences that are closely integrated with and that enrich their total education and their academic and/or career goals."[1]

These instructions for Title IV-D grant applications stipulate the conditions which must be met in order for an institution of higher education to be eligible to receive a cooperative education grant. These grants may be awarded to accredited institutions of higher education in order to support the following activities:

- supplement existing career education opportunities;
- modify cooperative education calendars and curricula;
- improve services to low income and minority, veterans, women and handicapped students participating in cooperative education programs;
- improve planning and coordination for effective interfaces between academic and career goals; and
- increase institutional commitment to cooperative education

Given this background and motivation for government intervention, the question that arises pertains to what has been the role and the effect of the Federal funding on the growth and structure of cooperative education. A key question that must be asked in assessing the effectiveness of Federal funding is: "What differences in the structure and growth of co-op programs would occur if no Federal funds were available?"

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[1] HEW publication, Instructions for Submitting a Cooperative Education Program Application, Academic year July 1, 1975-June 30, 1976, p. 3.

Title IV-D of HEA* has certain features which should be considered in an assessment of the effectiveness of Federal funding. For one, the maximum amount which a single grantee may receive in any fiscal year under Title IV, Part D for the administration of cooperative education programs was $75,000. For another, no institution could receive Federal support for more than three fiscal years under this title. Hence, the funding levels per institution are small and impermanent in relation to other operating budget items. This observation, in conjunction with the fact that a relatively large proportion of Title IV-D funded co-op programs are new, should lead one to view an assessment of the effectiveness of IV-D funding as descriptive rather than conclusive.

The primary focus in the analysis of data concerning the assessment of the effectiveness of Federal funding was to compare co-op institutions receiving Title IV-D funds with those co-op institutions not receiving such funds on a broad range of institutional characteristics and co-op program features. In addition, a descriptive analysis of IV-D funded institutions is provided, documenting how these funds have been used.

Some of the issues involved in this study component have already been addressed in a supplementary substudy conducted by this project. The results of this substudy were published in November, 1976 in a report available from the Office of Planning, Budgeting and Evaluation (OPBE) of the U.S. Office of Education, entitled "Report on Federal Funding Patterns for Cooperative Education under Title IV-D of the Higher Education Act." It was based upon an examination of all proposals funded in 1975-76, a sample of proposals which were not funded, and personal interviews with cooperative education staff in the Office of Education. The major objectives of that substudy were to:

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*As it existed up until the period of time in which this study was conducted. The Education Amendments of 1976, passed since that time, have made a number of changes in these restrictions. Thus, where we have relevant data, we shall also try to assess if these changes appear to represent sound policy decisions.

- examine the administrative practices and procedures governing the award, monitoring, and evaluation of Title IV-D grants;
- describe and analyze trends in the characteristics of institutions awarded grants for Fiscal Years 1973-74, 1974-75, and 1975-76; and
- compare the characteristics of a sample of funded and non-funded grant applications for 1975-76.

In achieving these purposes, a number of significant findings were uncovered and several general conclusions developed. While complete details are available in the report cited above, a summary of these findings is presented below.

Summary of Finding from the Federal Funding Patterns Substudy

The three major objectives are addressed in Chapter 3 and 4 of the substudy report. The findings discussed in depth in these chapters may be summarized as follows:

- Geographic Distribution

  The geographic distribution of recipient institutions of IV-D funds does not conform to the distribution of national population or of undergraduate colleges. One historical explanation for this finding is the fact that a large number of the early IV-D applicants had been Title III recipients, and a high proportion of these schools were located in OE Region IV*. Thus, it would be expected that the institutions with IV-D co-op programs would have a somewhat similar geographic distribution. This area also submitted more applications than other OE Regions.

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*OE Region IV covers the South Atlantic area consisting of seven states: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, and Tennessee.

- **Types of Institutions**

  There is no significant difference between the funded and non-funded applications in terms of institutional type or institutional control. However, an institution which applied as part of a consortium may be more likely to receive funding than an institution which applies individually.

  Twice as many public institutions are funded as private institutions. Consortium schools are even more likely to be publicly controlled. Those schools which have most often been the recipients of IV-D funding are the 2-year institutions.

- **Funding Characteristics**

  There is a significant difference in funding histories between the funded and non-funded samples. The funded sample comes from institutions which, for the most part, were in their third year of consecutive Title IV-D funding (32 institutions). The non-funded applications come from institutions which, for the most part, had never received Title IV-D funding (39 institutions).

  As can be expected from the funding history of the applications studied, prior IV-D funding is statistically, an excellent predictor that an institution will receive continued funding as permitted by law, but the amount previously received does not affect the chances of being funded again.

  The average grant award is less than $30,000 and hence considerably less than the $75,000 maximum set by law. Both funded and non-funded applications asked for considerably more, on the average, than they received. However, we did not detect any significant difference between the groups in terms of proposed IV-D budgets or non-IV-D sources of support for co-op.

  There is a difference, however, in average non-IV-D support for cooperative education. Non-funded applications report a higher total level of non-IV-D support, especially Title III funds. Funded applications report slightly greater institutional support of cooperative education.

- **Program Purposes**

  An institution is more likely (in the 1975-76 year) to receive a grant for strengthening or expanding its program than for planning purposes. According to the co-op program office staff, this reflects a deliberate shift in their funding strategy to focus more heavily on those types of projects.

Funded applications are much more likely to be from existing cooperative education programs. Of the 40 existing programs which were funded (of 52), 36 had previously been supported by Title IV-D funds.

- Staffing Characteristics

  The cooperative education staff of funded institutions is slightly larger than non-funded institutions. However, there has been a general decline in the average number of full and part-time staff of funded institutions over the three years studied. This may reflect the effect of inflation on personnel costs or it may be due to the fact that fewer personnel are needed after the first few start-up years.

- Integration With Regular Academic Programs

  The substantial majority of funded programs in 1973-74 and 1974-75 (about 75%) award academic credit for participation in cooperative education. For 1975-76, about the same number award non-additive credit, i.e., credit which applies to a degree in the same way as academic courses. The length of a co-op work experience in most schools is a semester, although many schools (especially public) utilize the quarter system as well. An average of six credits is awarded for the work experience. An institution which awards non-additive credit is more likely to receive funding than one which awards additive credit.

- Enrollment Characteristics

  The enrollments in funded and non-funded institutions do not differ greatly. The funded institutions exhibit a higher Black enrollment, however. Of the IV-D funded institutions, private 4-year and public 2-year institutions show the largest overall co-op programs as measured by the average (mean) number of students. Between 1974-75 and 1975-76, private institutions of all types have expanded their co-op programs, while the size has dropped at public 2-year institutions. Black enrollment in co-op programs has been highest at private 4-year institutions, while Spanish-surname enrollment has been higher at public 2-year institutions.

- Characteristics of Work Component

  Funded applications on the average report a higher number of students are placed in jobs as part of the cooperative education program. However, non-funded applications report a higher number of employing agencies.

  There is no significant difference in the earnings of co-op students in the two groups of institutions.

The completed and planned work assignments for co-op students differ between the groups in a way similar to enrollments. Funded institutions exhibit larger mean, but not median total assignments. The non-funded institutions had more assignments for Spanish-surname and Indian students, but they had fewer assignments for Black students. The number of work assignments indicated by the IV-D funded institutions has doubled since 1973-74, so employers are apparently providing more assignments each year. The number of work assignments is less than the co-op enrollment, on the average. Since IV-D programs are predominantly alternating, not all students are, in general, out on work assignments at the same time. Thus, this finding does not indicate that there are insufficient work assignments for the number of students enrolled.

- Types of Curricula

  Engineering programs have fared particularly well in terms of funding, while programs in the social and behavioral sciences have not. Programs in vocational arts and technology, and in office occupations, also fare poorly. This is largely because co-op programs in these areas have traditionally tended to be parallel programs, and IV-D funds are generally designated for alternating programs.

The remainder of this chapter will focus on the results derived from the main on-site interview phase of this project. The major study objectives which have been investigated in this phase are discussed in the following subsections within the context of the following two conceptual areas of analysis:

- where and how IV-D funds are being used; and
- impact of IV-D funds on changes and development of co-op programs.

I. WHERE AND HOW IV-D FUNDS ARE BEING USED

In this area of analysis we investigate the use of IV-D funds within schools, and also explore differences across schools by relating the use of funds to program and institutional characteristics and comparing schools with IV-D funds to schools without these funds.

A. Activities for Which Title IV-D Funds are Being Used

As might be expected, since there are few restrictions on the uses of the Title IV-D monies, these funds have been put to a wide variety of uses. Nevertheless there are a few general categories which have comprised the primary purposes for which these monies have been used in most of the schools. The most frequent use was to pay for the salaries of the co-op staff, which was specifically mentioned by 17 of the 48 IV-D schools in our sample. (A number of schools answered in terms of very general purposes, e.g., administration, and so in many of these schools it is very likely that the IV-D monies, at least in part, also went into staff salaries). Other common uses of the IV-D funds were for travel (in 12 schools), for supplies and office expenses (13 schools), for program expansion (14), and for planning and administration (in 12 schools). As might be expected, these last two purposes were significantly differentiated in terms of whether the program had already existed at the time of the IV-D grant or if it was a new program. Of the 12 schools using the money for planning or administration, 11 were new programs; and of the 14 schools using these funds for expansion, 11 already had an existing cooperative education program.

While slightly more new programs used the IV-D monies to create new positions, this was very common among all schools (in 84% overall, and in 93% of the new programs and 70% of the schools with existing programs). In most schools these IV-D monies were used to create the position of co-op director or coordinator. In about one-fifth of the existing programs new clerical staff positions were created.

The typical school in this sample received an IV-D grant of $25,732 in 1975-76. The amounts received have changed little over the three years reported; it was $25,570 in 1974-75, and $24,697 in 1973-74. Much more detailed information on funding patterns is available in our previously cited Substudy Report on Federal Funding Patterns. In that report, the average grant in 1975-76 was computed to be $25,716, implying that the schools in the current sample do seem to be representative of IV-D grantees in general. While the 4-year schools in this sample received slightly larger grants than 2-year schools, the differences were not statistically significant. No differences in the size of grants were found between public versus private schools or in terms of newer versus older co-op programs. These findings exactly parallel those reported in our earlier Federal Funding Patterns substudy.

One of the few major restrictions in the previous legislation authorizing the IV-D programs was that the co-op programs to be supported generally had to be of an alternating rather than parallel type. Since this restriction has been dropped in the new legislation, it is interesting to determine the extent to which IV-D funds had been used for parallel programs, and more importantly to assess if the change to include parallel programs was a sound one. Basically it appears that this change will have a very positive impact on the growth of co-op, especially in 2-year schools. As seen in Table 4.1 below, the desire to be able to offer parallel work and study is almost unanimous among the co-op directors at 2-year schools and is quite strong even within 4-year schools.

TABLE 4.1: PREFERENCE FOR OPTION FOR PARALLEL WORK AND STUDY BY DIFFERENT SCHOOL TYPES

	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
Prefer Parallel Work and Study	56.6%(13)	52.4%(11)	91.7%(22)	52.4%(11)
Not Prefer Parallel Work and Study	34.8%(8)	28.6%(6)	4.2%(1)	4.8%(1)
Does not Apply	8.7%(2)	19.0%(4)	4.2%(1)	42.9%(9)
	100%	100%	100%	100%

In terms of actual practice, the majority of students at 2-year schools, even those receiving IV-D funds, have been on a parallel schedule. While in 4-year schools most students have adhered to the traditional and mandated pattern of alternating periods of full-time study with periods of full-time employment, it is significant that in 4-year programs of more recent origin that developed without IV-D funding, the proportion of students on a parallel schedule is about the same as in co-op programs in 2-year schools (see Tables 4.2 and 4.3 below).

TABLE 4.2: PERCENTAGE OF STUDENTS ON PARALLEL SCHEDULE BY TYPE OF SCHOOL

4-Year IV-D	18%(22)
4-Year Non-IV-D	26%(12)
2-Year IV-D	63%(20)
2-Year Non-IV-D	56%(10)

TABLE 4.3: PERCENTAGE OF STUDENTS IN 4-YEAR SCHOOLS ON PARALLEL SCHEDULE BY AGE OF PROGRAM

IV-D Older Programs	17%([illegible])
IV-D Newer Programs	21%(5)
Non-IV-D Older Programs	21%(9)
Non-IV-D Newer Programs	72%(3)

Thus it seems clear that the new option for parallel schedule will allow for a significant amount of growth of new co-op programs, certainly in 2-year schools and very likely in 4-year schools as well.

B. Relationship of IV-D Funds to Characteristics of Co-op Programs and Schools

One important question under this general issue of where and how IV-D funds are being used, which will be addressed in this section is: do programs with IV-D funds differ from co-op programs without these funds in terms of structural and operational characteristics? Another aspect of this issue to be discussed is whether or not the two categories of programs differ in terms of their success. While success of a cooperative education program can be variously defined, and the strict cost-benefit criterion of success will be dealt with elsewhere in this report, we will be concerned in this section primarily with the perceived benefits and satisfactions from the points of view of both the students enrolled in these programs as well as the employers who hire cooperative education students.

Basically, the overall conclusion that can be drawn from these data collected is that, by and large, co-op programs funded by Title IV-D show no consistent or significant pattern of differences from those programs not receiving these funds. In a few limited specific instances, there appears to be at least a tendency toward some variation in program features between these program types, which will be discussed below. Nevertheless, in terms of institutional characteristics, program operational features, or perceptions of success, the Title IV-D does not appear to have greatly impacted on the general nature and structure of cooperative education.

For example, the distribution of public versus private control is not different for institutions with IV-D programs as opposed to those with non-IV-D funded co-op programs (see Table 4.4 below).

TABLE 4.4: PUBLIC VERSUS PRIVATE CONTROL

	IV-D	Non-IV-D
Public	77%(37)	81%(13)
Private	23%(11)	19%(3)
NS*		

*Not Significant. Where NS appears only once in the left-hand column, the entire run is included. Where it appears only in one column of several, only that column is included. This stands for all other tables containing a designation of NS.

Also, there is no statistically significant difference between the two types of programs in terms of the size of the institution's enrollment, for both students enrolled in co-op and the non-co-op student enrollment (see Tables 4.5 and 4.6).

TABLE 4.5: TOTAL NUMBER OF UNDERGRADUATE CO-OP STUDENTS

	AVERAGE ENROLLMENT FOR:		
	1973-74	1974-75	1975-76
4-Year IV-D	353.1	392.6	444.4
4-Year Non-IV-D	450.5	420.2	313.0
2-Year IV-D	218.7	267.3	284.2
2-Year Non-IV-D	288.2	393.3	294.8
	NS	NS	NS

TABLE 4.6: TOTAL NUMBER OF UNDERGRADUATE NON-CO-OP STUDENTS

	AVERAGE ENROLLMENT FOR:		
	1973-74	1974-75	1975-76
4-Year IV-D	5785.9	5898.5	6443.9
4-Year Non-IV-D	5863.1	6213.2	6932.3
2-Year IV-D	4351.8	4981.0	5590.0
2-Year Non-IV-D	4845.1	5375.8	5937.9
	NS	NS	NS

While, as we have noted, none of these differences are statistically significant, and the variability within categories of schools is extremely large, two trends should be noted. First, the co-op enrollments at IV-D institutions are increasing, while those at non-IV-D schools seem to be remaining stable or even showing a decline. This will be discussed more fully later in this chapter. Secondly, the data also indicate that the co-op programs supported by IV-D in 2-year schools are somewhat smaller than those in the other three categories. This is, of course, due to the fact that the 2-year IV-D programs contain the greatest proportion of programs that have only recently been initiated. In fact this characteristic, recently of origin, is one of the few areas in which IV-D programs, at least those in 2-year schools, are significantly different than non-IV-D programs, as seen in Table 4.7.

TABLE 4.7: AGE OF CO-OP PROGRAM

	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
New*	25.0%(6)	28.0%(6)	58.3%(14)	10.0%(20
Old	75.0%(18)	72.0%(15)	41.7%(10)	90.0%(18)

*New has been operationalized as a program which admitted its first co-op student in the 1973-74 academic year or later.
$p < .01$ (p represents the level of confidence associated with the observed differences; i.e., the proportion of times these differences could have occured by chance.)

In addition to these institutional characteristics, IV-D and non-IV-D schools were compared with each other in terms of the demographic and socioeconomic characteristics of the students enrolled in their co-op programs and the employers participating in these programs.

The co-op students from IV-D and non-IV-D schools were compared in terms of their age, sex, ethnicity, parental income, education background, and their grade point average. However, very few statistically significant relationships were found. One significant pattern that did appear in these comparisons was that of a somewhat lower socioeconomic background among students in IV-D programs in 4-year institutions as compared to 4-year non-IV-D programs. This is in part due to the fact that engineering programs, which tend to contain students of higher socioeconomic background, are more common in the older co-op programs of the 4-year non-IV-D schools. On the other hand, among the students in 4-year liberal arts programs, IV-D schools still have higher proportions of students with lower parental income and education backgrounds. This corresponds with the fact that there is also a higher proportion of minority students in these programs. There is also a higher proportion of minority students in IV-D funded business programs at both 2- and 4-year schools. Among the IV-D business programs in 2-year schools which came into existence prior to 1973-74, there is a higher proportion of males than in the corresponding 2-year non-IV-D programs. This would indicate that these older business programs that have not received

IV-D funding have tended to more frequently offer programs in secretarial science, while those with IV-D grants have put greater emphasis on more typically male-dominated areas as business administration and accounting. Finally, students in 4-year IV-D programs have higher grade point averages (GPAs) than those in non-IV-D programs. However, this is largely a function of the previously mentioned concentration of engineering programs in non-IV-D schools, since engineering students, in general, have much lower GPAs than students in other program areas. When program area is taken into account, little difference is found between the GPAs of 4-year IV-D and non-IV-D students.

In terms of the background characteristics of the employers who hire the co-op students, even fewer differences are found between those associated with IV-D and non-IV-D programs. These two groups of employers were compared in terms of the following characteristics:

- size of firm;
- type of industry;
- unionization or non-unionization of firm;
- occupational area for which students are hired (Business, Engineering, Health, T&I, or Liberal Arts);
- job category of students (professional, other white collar, blue collar, service);
- number of students employed; and
- length of time hiring students from school's co-op program.

With one exception, no significant differences were found between the employer's of students from IV-D as compared to non-IV-D programs. Among the employers associated with 4-year schools, those hiring from non-IV-D programs typically hired a statistically significantly larger number of students from the institutions' co-op program (an average of 12.5 as compared to 3.8 students hired by employers of students from IV-D programs). We would hypothesize that this is related to the earlier cited fact that

4-year non-IV-D institutions are more heavily concentrated in the traditional co-op discipline of engineering.

In terms of program operational features and characteristics, again there are few differences between the IV-D and non-IV-D co-op programs.

One area in which IV-D funds appear to have had some impact is in the support of co-op in the more non-traditional program areas of liberal arts and trade and industry (T&I). Cooperative education was started in the engineering area and has also been fairly well established in the business areas. Co-op programs in liberal arts and T&I are a relatively recent phenomenon, and it appears that the growth in those areas has been encouraged by the IV-D programs. While our data are not definitive, it does seem that this has occurred in schools with established co-op programs as well as the schools which have only recently initiated programs (see Tables 4.8 and 4.9).

It is also interesting to note that engineering, the oldest co-op area, does seem to be the one in which few new programs are developing. For the other four areas, the proportion of schools offering co-op in that discipline is about the same for schools that have only recently initiated co-op as for schools with longer established programs. However, for engineering, while 67 percent of the older co-op schools offer co-op in this area, only 26 percent of the schools which began co-op in the past few years offer a co-op program in engineering.

TABLE 4.8: AREAS IN WHICH CO-OP IS OFFERED FOR OLDER PROGRAMS

% of schools offering co-op in:	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
Business	89%(16)	67%(10)	100%(10)	100%(18)*
Engineering	72%(13)	73%(11)	70%(7)	28%(5)*
Health	33%(6)	20%(3)	50%(5)	22%(4)
Liberal Arts	83%(15)	60%(9)	100%(10)	28%(5)*
Trade-Industrial	33%(6)	57%(4)	100%(10)	44%(8)*

* $p < .01$

TABLE 4.9: AREAS IN WHICH CO-OP IS OFFERED FOR NEWER PROGRAMS

% of schools offering co-op in:	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
Business	100%(6)	83%(5)	86%(12)	0*
Engineering	0	50%(3)	29%(4)	0
Health	50%(3)	33%(2)	21%(3)	100%(2)
Liberal Arts	83%(5)	67%(4)	64%(9)	0
Trade-Industrial	17%(1)	17%(1)	50%(7)	0

* p∠.01

Co-op as a mandatory degree requirement is not more common in IV-D versus non-IV-D schools, although as might be expected newly initiated co-op programs are almost always voluntary. For this reason, and since IV-D programs are new in general, the following table (4.10) presents a comparison among the different school types for older programs only.

TABLE 4.10: MANDATORY CO-OP PROGRAMS

% of schools with mandatory programs (of older programs offering the area):	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D	
Business	6%(1)	10%(1)	30%(3)	28%(5)	NS
Engineering	15%(2)	9%(1)	0	25%(1)	NS
Health Professions	20%(1)	67%(2)	40%(2)	50%(2)	NS
Liberal Arts	14%(2)	0	10%(1)	25%(1)	NS
Trade-Industrial	0	25%(1)	20%(2)	43%(3)	NS

Also, there is no difference between the two types in terms of any desire to convert co-op to a mandatory program.

Offering credit for the co-op work experience does not seem to be more common among IV-D schools, although a very important factor is the level of the school. As seen in Table 4.11, credit is much more frequently given by 2-year schools, both IV-D and non-IV-D. While this relationship is statistically significant only for business and engineering, the same pattern is also found in the other three program areas.

TABLE 4.11: CREDIT OFFERED IN DIFFERENT SCHOOL TYPES BY PROGRAM AREA

% of schools (of those offering the area) awarding credit in:	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
Business	70%(14)	64.3(9)	95.5(21)	100.0(18)*
Engineering	46.2(6)	46.2(6)	100.0(10)	100.0(6)*
Health	83.5(7)	71.4(5)	100.0(9)	87.5(7)
Liberal Arts	68.8(11)	78.6(11)	94.1(16)	85.7(6)
Trade-Industrial	66.7(4)	71.4(5)	93.3(14)	100.0(9)

* $p < .01$, for 2-year vs. 4-year comparison

In terms of the services provided to the students, such as counseling and placement, there were no significant differences between IV-D and non-IV-D programs. Also, the role of the co-op director in terms of his position in the institution or the ways in which his responsibilities are structured are not different for these two types of programs. Specifically, the following other variables were examined and found to show no statistically significant differences between schools receiving IV-D funds and those without such funds:

- To whom in the institution the co-op director reports. Most co-op directors, both in IV-D and non-IV-D institutions report to an academic dean (42%, overall).
- Whether or not they have any non-co-op responsibilities. Only 8 percent have no other responsibilities.
- Hours devoted to following responsibilities:
    - Administration (10.7 hrs/week overall)
    - Teaching (1.4)
    - Counseling with faculty (2.8)
    - Contact with employers (5.5)
    - On-site teaching/evaluation of students (2.8)
    - Other contact with students (4.6 overall, but much greater in 4-year schools, 7.0 hours, than in 2-year, 2.0 hours)
    - Research (1.3)
    - Other co-op activities (1.8).

- Provision of placements service for co-op in addition to regular school placement (occurs in 22% of schools surveyed).
- Types of counseling (over 80% provided general career, work experience, academic and personal counseling).
- Provision of counseling by:
  - Co-op director (84%)
  - Faculty (68%)
  - Counseling staff (65%)
  - Placement office (41%).

Thus it appears that IV-D is having little programmatic impact on cooperative education. This is not surprising since the grants are awarded with few restrictions or requirements concerning the types of programmatic features that are to be supported with these monies. On the other hand, as will be seen in the next section, these funds are having a major impact on the growth of co-op.

This general lack of difference in the structure of co-op between schools receiving IV-D funds and those not receiving such funds is again borne out when looked at from the point of view of the participating students and employers.

As noted elsewhere in this report, co-op has in general done an excellent job of providing students with work experiences which are related to their major areas of study. As seen in Table 4.12, the different types of programs, IV-D and non-IV-D in both 2- and 4-year schools, have all been equally successful in this regard.

TABLE 4.12: WORK EXPERIENCE RELATED TO MAJOR AREA BY DIFFERENT SCHOOL TYPES FOR CO-OP STUDENTS

	4-Year	4-Year	2-Year	2-Year
	IV-D	Non-IV-D	IV-D	Non-IV-D
Related	78.1%(281)	81.6%(124)	83.5%(253)	84.5%(95)
Not Related	21.9%(79)	18.4%(28)	16.5%(50)	15.5%(18)
NS	100%	100%	100%	100%

The co-op students in our sample were asked to rate their co-op programs in terms of nine specific components as well as its overall quality. These can be used as one very important criterion of success against which the programs funded by IV-D can be compared to those without IV-D funds (see Tables 4.13a to 4.13j).

TABLE 4.13a: QUALITY OF TRAINING FROM CO-OP EMPLOYERS AS RATED BY CO-OP STUDENTS BY DIFFERENT SCHOOL TYPES

	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
Excellent	28.0%(136)	35.0%(62)	36.6%(170)	32.1%(71)
Above Average	35.6%(173)	30.5%(54)	31.7%(147)	34.8%(77)
Average	26.3%(128)	24.9%(44)	22.0%(102)	25.3%(56)
Below Average	5.8%(28)	7.3%(13)	5.2%(24)	4.1%(9)
Poor	4.3%(21)	2.3%(4)	4.5%(21)	3.6%(8)
NS	100%	100%	100%	100%

TABLE 4.13b: ADEQUACY OF EMPLOYERS' FACILITIES AS RATED BY CO-OP STUDENTS BY DIFFERENT SCHOOL TYPES

	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
Excellent	34.2%(166)	39.0%(69)	34.1(156)	31.7%(70)
Above Average	33.8%(164)	36.7%(65)	30.8%(141)	35.7%(79)
Average	24.7%(120)	20.3%(36)	26.4%(121)	27.1%(60)
Below Average	5.2%(25)	2.8%(5)	6.1%(28)	3.2%(7)
Poor	2.1%(10)	1.1%(2)	2.6%(12)	2.3%(5)
NS	100%	100%	100%	100%

TABLE 4.13c: RELEVANCE OF CLASSWORK TC WORK EXPERIENCE AS RATED BY CO-OP STUDENTS BY DIFFERENT SCHOOL TYPES

	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
Excellent	16.5%(80)	16.5%(29)	27.8%(129)	28.5%(63)
Above Average	26.1%(127)	27.8%(49)	29.3%(136)	33.0%(73)
Average	37.4%(182)	34.1%(60)	28.2%(131)	30.8%(68)
Below Average	13.4%(65)	15.9%(28)	9.7%(45)	5.0%(11)
Poor	6.6%(32)	5.7%(10)	5.0%(23)	2.7%(6)
$p < .01$	100%	100%	100%	100%

TABLE 4.13d: RECRUITMENT OF EMPLOYERS IN CAREER-RELEVANT AREAS AS RATED BY CO-OP STUDENTS BY DIFFERENT SCHOOL TYPES

	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
Excellent	16.4%(79)	15.1%(26)	16.7%(75)	14.3%(31)
Above Average	31.3%(151)	36.0%(62)	29.0%(130)	34.6%(75)
Average	35.6%(172)	38.4%(66)	42.1%(189)	39.6%(86)
Below Average	12.8%(62)	8.1%(14)	8.2%(37)	6.9%(15)
Poor	3.9%(19)	2.3%(4)	4.0%(18)	4.6%(10)
NS	100%	100%	100%	100%

TABLE 4.13e: ON-GOING COMMUNICATION WITH EMPLOYERS AS RATED BY CO-OP STUDENTS BY DIFFERENT SCHOOL TYPES

	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
Excellent	22.7%(110)	20.0%(35)	28.9%(133)	20.5%(45)
Above Average	38.1%(185)	41.1%(72)	31.1%(143)	31.1%(68)
Average	27.4%(133)	27.4%(48)	29.3%(135)	35.2%(77)
Below Average	8.9%(43)	9.7%(17)	7.2%(33)	10.0%(22)
Poor	2.9%(4)	1.7%(3)	3.5%(16)	3.2%(7)
NS	100%	100%	100%	100%

TABLE 4.13f: COUNSELING IN CAREER PLANNING AS RATED BY CO-OP STUDENTS BY DIFFERENT SCHOOL TYPES

	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
Excellent	11.8%(58)	9.1%(16)	20.0%(92)	10.8%(24)
Above Average	22.0%(108)	22.2%(39)	25.0%(115)	30.6%(68)
Average	39.8%(195)	38.6%(68)	38.7%(178)	37.4%(83)
Below Average	16.4%(83)	16.5%(29)	10.9%(50)	14.4%(32)
Poor	9.4%(46)	13.6%(24)	5.4%(25)	6.8%(15)
$p < .01$	100%	100%	100%	100%

TABLE 4.13g: PLACEMENT IN WORK EXPERIENCE AS RATED BY CO-OP STUDENTS BY DIFFERENT SCHOOL TYPES

	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
Excellent	17.8%(87)	21.6%(38)	20.3%(92)	18.5%(40)
Above Average	37.1%(182)	39.2%(69)	29.6%(134)	34.7%(75)
Average	30.0%(147)	31.3%(55)	36.4%(165)	33.3%(72)
Below Average	9.4%(46)	6.8%(12)	9.3%(42)	8.3%(18)
Poor	5.7%(28)	1.1%(2)	4.4%(20)	5.1%(11)
NS	100%	100%	100%	100%

TABLE 4.13h: PLACEMENT UPON GRADUATION AS RATED BY CO-OP STUDENTS BY DIFFERENT SCHOOL TYPES

	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
Excellent	17.9%(84)	24.4%(40)	13.6%(58)	8.7%(18)
Above Average	31.4%(147)	35.4%(58)	25.1%(107)	22.3%(46)
Average	40.4%(187)	32.9%(54)	44.6%(190)	48.1%(99)
Below Average	7.7%(36)	4.9%(8)	10.8%(46)	11.2%(23)
Poor	3.0%(14)	2.4%(4)	5.9%(25)	9.7%(20)
$p < .01$	100%	100%	100%	100%

TABLE 4.13i: QUALITY OF INSTRUCTION AT COLLEGE AS RATED BY CO-OP STUDENTS FROM DIFFERENT SCHOOL TYPES

	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
Excellent	17.9%(88)	26.0%(46)	34.5%(161)	22.1%(49)
Above Average	42.0%(206)	43.5%(77)	35.4%(165)	42.3%(94)
Average	32.4%(159)	24.3%(43)	22.1%(103)	29.3%(65)
Below Average	1.9%(34)	6.2%(11)	6.7%(31)	2.7%(6)
Poor	0.8%(4)	0	1.3%(6)	3.6%(8)
p<.01	100%	100%	100%	100%

TABLE 4.13j: OVERALL QUALITY OF CO-OP PROGRAM AS RATED BY CO-OP STUDENTS BY DIFFERENT SCHOOL TYPES

	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
Excellent	26.8%(131)	31.6%(56)	35.2%(164)	28.1%(62)
Above Average	43.1%(221)	27.1%(48)	19.7%(92)	25.3%(56)
Average	22.9%(112)	27.1%(48)	19.7%(92)	25.3%(56)
Below Average	4.9%(24)	0.6%(1)	4.5%(21)	1.4%(3)
Poor	2.2%(11)	0	4.5%(21)	2.3%(5)
p<.01	100%	100%	100%	100%

In most cases there are no statistically significant differences in program quality as measured by the students' perceptions between these different types of co-op programs. This is the case in terms of: quality of training from employers, adequacy of employers facilities, recruitment of employers in career relevant areas, ongoing communication with employers, and placement in work experience. In two cases there are statistically significant differences, but which are attributable to the level of school rather than IV-D funding. As seen in Table 4.13c, the relevance of classwork to the work experience is rated higher by students attending 2-year schools, both IV-D and non-IV-D, than by students at either type of 4-year school. On the other hand, the placement upon graduation component of the co-op programs is viewed as better by 4-year students than by those in 2-year schools (see Table 4.13h). In relation to the program components of counseling in career planning and quality of instruction what is found is that students in 2-year IV-D schools rate these higher than do students of the other three types of schools (see Tables 4.13f and 4.13i).

As was pointed out earlier, the 2-year IV-D schools contain the highest proportion of newly initiated programs. In fact, it does appear that it is the newness of the program, rather than its funding source, that is the major factor in explaining the higher rating given those components by the students. For counseling in career planning, 25 percent of students in recently initiated programs rate this area as excellent as compared to only 10 percent of the students in older programs. Similarly, the quality of instruction is rated as excellent by 35 percent of those in newer programs, as compared to 22 percent of the students in older programs. These differences are also, in part, related to the program area of the students. Counseling in career planning and placement upon graduation tend to be rated higher by students in engineering programs. On the other hand, relevance of classwork to work experience is lowest rated by engineering students, and highest rated by those in health. Finally, Table 4.13j presents the ratings of the overall quality of the co-op program that were given by the students. It should be pointed out that while there are statistically significant differences between the different types of schools, the absolute magnitude of those differences is relatively small. This is often seen in tables such as these where, due to the large sample of students, even small differences may be statistically significant. Such tables must be interpreted with caution since, while the statistical test can show that the observed differences are not likely to be merely chance fluctuations, nevertheless the differences may still be so small as to not be of practical significance and of little meaning or utility to either the practitioners or the policymakers in cooperative education. However, in terms of this rating of overall quality, what differences do exist again appear to be more a function of program age than level of school, source of funding, or program area. The overall quality of the co-op program is rated as excellent by 42 percent of the students in newer programs as compared to only 27 percent of the students enrolled in older programs.

Finally program success can also be defined from the point of view of the perceptions of the employers who hire co-op students. As seen in Tables 4.14 to 4.17, there are no significant differences between employers associated with different types of co-op schools in terms of their ratings of co-op students as compared to regular workers in terms of their technical knowledge, communication skills, quality of work, or quantity of work.

TABLE 4.14: COMPARISON OF CO-OP STUDENT TO REGULAR EMPLOYEE IN TECHNICAL KNOWLEDGE BY DIFFERENT SCHOOL TYPES

% OF EMPLOYERS' RATING AS:	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
BETTER	40.0%(30)	42.1%(8)	48.9%(43)	57.1%(20)
NO DIFFERENCE	28.0%(21)	15.8%(3)	29.5%(26)	20.0%(7)
WORSE	32.0%(24)	42.1%(8)	21.6%(19)	22.9%(8)
	100%	100%	100%	100%
NS				

TABLE 4.15: COMPARISON OF CO-OP STUDENT TO REGULAR EMPLOYEE IN COMMUNICATION SKILLS BY DIFFERENT SCHOOL TYPES

% OF EMPLOYERS' RATING AS:	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
BETTER	38.7%(29)	36.8%(7)	54.4%(49)	51.4%(18)
NO DIFFERENCE	44.0%(33)	52.6%(10)	32.3%(29)	34.3%(12)
WORSE	17.3%(13)	10.5%(2)	13.3%(12)	14.3%(5)
	100%	100%	100%	100%
NS				

TABLE 4.16: COMPARISON OF CO-OP STUDENT TO REGULAR EMPLOYEE IN QUALITY OF WORK BY DIFFERENT SCHOOL TYPES

% OF EMPLOYERS' RATING AS:	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
BETTER	37.3%(28)	36.8%(7)	48.9%(44)	54.3%(19)
NO DIFFERENCE	46.7%(35)	42.1%(8)	30.0%(27)	37.1%(13)
WORSE	16.0%(12)	21.1%(4)	21.1%(19)	8.6%(3)
	100%	100%	100%	100%
NS				

TABLE 4.17: COMPARISON OF CO-OP STUDENT TO REGULAR EMPLOYEE IN QUALITY OF WORK BY DIFFERENT SCHOOL TYPES

% OF EMPLOYERS' RATING AS:	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
BETTER	31.1%(23)	26.3%(5)	36.7%(33)	51.4%(18)
NO DIFFERENCE	39.2%(29)	52.6%(10)	46.7%(42)	31.4%(11)
WORSE	29.7%(22)	21.1%(4)	16.7%(15)	17.1%(6)
	100%	100%	100%	100%
NS				

In terms of the employers' ratings of the overall quality of the co-op programs with which they are associated, as seen in Table 4.18, there are again no statistically significant differences between types of schools. However, it should be noted that there is a tendency for lower ratings to be given by employers hiring students from 4-year non-IV-D schools than for the other three types.

TABLE 4.18: EMPLOYERS' RATING OF CO-OP PROGRAMS BY DIFFERENT SCHOOL TYPES

% OF EMPLOYERS' RATING AS:	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
POOR	0	0	2.1%(2)	0
BELOW AVERAGE	3.7%(3)	4.8%(1)	1.1%(1)	0
AVERAGE	8.6%(7)	9.5%(2)	11.7%(11)	11.1%(4)
ABOVE AVERAGE	35.8%(29)	57.1%(12)	38.3%(36)	33.3%(12)
EXCELLENT	51.9%(42)	28.6%(6)	46.8%(44)	55.6%(20)
	100%	100%	100%	100%
NS				

When specific characteristics of the employers are taken into account, including size of firm, type of firm, type of jobs for which students are hired, length of time associated with the co-op program, and whether or not the firm is unionized, this lack of difference between employers associated with IV-D programs as compared to non-IV-D programs remains a consistent pattern.

In summary then, programs which have received Title IV-D funds are very similar to those that have not received such funds. This is not to be taken as an indictment of the Federal program. As is shown elsewhere in this report, co-op, in general, is providing substantial benefits to its participants, and, therefore, the major impact the IV-D program has had on the growth of cooperative education is in itself a positive contribution to higher education. However, if it is now considered appropriate to expand the Federal role to include promoting improvements in the quality of cooperative education programs, then the implications are that some changes in Federal policy would be desirable. As has been shown elsewhere in this report, the area in which co-op seems to be in the most need for improvement is in terms of activities and experiences, especially those provided by the schools, which would promote better career choices by the student. Given that the IV-D monies presently go to the IHE, it would seem that in this area, relatively minor changes in Federal policies and procedures could have significant impact. These changes would include two basic types: 1) putting more requirements and restrictions on the use of the monies to support career development activities; and 2) changing the basic Federal orientation towards co-op from viewing it solely as a financial aid mechanism to one which also views it, as we have shown the participants do, as a career education process.

C. Addressing of Priority Areas by Programs with IV-D Funds

In addition to the specific requirements of the HEA Title IV-D legislation, USOE has established guidelines for high priority areas to which funded cooperative education programs should address themselves. These include the degree to which the programs have become aware of and have tried to incorporate the special needs of disadvantaged and/or handicapped students and the extent to which such programs have expanded and improved services to minority groups and women. Thus, this section will provide data relating to the following questions: what proportions of such students are involved in Federally funded co-op programs; what proportions of such students are involved in non-Federally funded programs; and to what degree previously existing programs that now receive IV-D funds have been able to increase services to such students?

As seen in Table 4.19, the proportion of co-op enrollment which is composed of females is almost identical in the four types of schools. Also, as seen in the same table, the proportion of all females in the school who are enrolled in co-op does not vary significantly among the types of schools.

TABLE 4.19: FEMALE CO-OP ENROLLMENT PROPORTIONS FOR 1975-76

	% OF CO-OP ENROLLMENT WHICH IS FEMALE	% OF TOTAL FEMALE ENROLLMENT WHICH IS IN CO-OP
4-Year IV-D	29.6%	10.6%
4-Year Non-IV-D	31.1%	21.5%
2-Year IV-D	31.7%	8.9%
2-Year Non-IV-D	36.2%	5.3%
	NS	NS

As seen in Table 4.20 below, it also appears that the receipt of IV-D funds has not been effective in encouraging schools to provide improved or expanded services to women. However, there is a statistically significant difference in terms of level of schools, with the 2-year institutions much less likely to have made such efforts.

TABLE 4.20: SPECIAL EFFORTS TO RECRUIT OR PLACE FEMALE STUDENTS BY DIFFERENT SCHOOL TYPES

	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
EFFORTS	50.0%(12)	52.4%(11)	33.3%(8)	19.0%(4)
NO EFFORTS	50.0%(12)	47.6%(10)	66.7%(16)	81.0%(17)
	100%	100%	100%	100%

NS, overall; $p < .05$ for 2-year vs. 4-year schools

In terms of the guidelines which put priority on the needs of physically handicapped students, again IV-D appears not to have any impact. Only very small proportions of co-op programs of any type consist of handicapped students, and there is not any higher proportion of schools which receive IV-D funds that have made any provisions to deal with the needs of handicapped students (see Tables 4.21 and 4.22).

TABLE 4.21: PERCENTAGE OF CO-OP ENROLLMENT WHICH IS PHYSICALLY HANDICAPPED FOR 1975-76

	% PHYSICALLY HANDICAPPED
4-Year IV-D	0.4%
4-Year Non-IV-D	0.7%
2-Year IV-D	0.5%
2-Year Non-IV-D	1.0%
NS	

TABLE 4.22: PROVISIONS TO DEAL WITH NEEDS OF PHYSICALLY HANDICAPPED STUDENTS BY DIFFERENT SCHOOL TYPES

	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
PROVISIONS	20.8%(5)	23.8%(5)	29.2%(7)	23.8%(5)
NO PROVISIONS	79.2%(19)	76.2%(16)	70.8%(17)	76.2%(16)
	100%	100%	100%	100%
NS				

In terms of minority enrollment, Table 4.23 shows that slightly higher (but not statistically significant) proportions are found in IV-D schools. However, as also seen in this table, in terms of the proportion of the minority enrollment which is in co-op, it appears that, except possibly among 2-year schools, IV-D funds have had little impact on the recruiting of minority students for co-op. Given the fact that the variability within type of schools is so much greater than the differences between types, no definitive conclusions can be drawn. Table 4.24 reveals no differences between

TABLE 4.23: MINORITY CO-OP ENROLLMENT PROPORTIONS FOR 1975-'76

	% OF CO-OP ENROLLMENT WHICH IS MINORITY	% OF TOTAL MINORITY ENROLLMENT WHICH IS IN CO-OP
4-Year IV-D	27.5%	15.5%
4-Year Non-IV-D	17.8%	18.4%
2-Year IV-D	13.0%	14.5%
2-Year Non-IV-D	5.4%	6.3%
	NS	NS

IV-D and non-IV-D schools in terms of special provisions to deal with the needs of disadvantaged students. Thus it appears that overall IV-D funding has had little if any impact on encouraging co-op programs to expand and/or improve their services to the special target populations which were to be given priority according to the Title IV-D program guidelines.

TABLE 4.24: PROVISIONS TO DEAL WITH NEEDS OF DISADVANTAGED STUDENTS BY DIFFERENT SCHOOL TYPES

	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
PROVISIONS	41.7%(10)	61.9%(13)	41.7%(10)	42.9%(9)
NO PROVISIONS	58.3%(14)	38.1%(8)	58.3%(14)	57.1%(12)
	100%	100%	100%	100%
NS				

II. IMPACT OF IV-D FUNDS ON THE DEVELOPMENT OF CO-OP PROGRAMS

One of the more important and interesting policy issues which this study has tried to address deals with the question of at what stages of program development have Title IV-D funds been most important and, given the limited funds available at what stage should they be concentrated in order to have maximum impact on the growth and development of cooperative education in institutions of higher education. Currently awards can be and are being made to both institutions without cooperative education programs for the purposes of planning and implementation, as well as to schools with existing programs for the purposes of strengthening and expanding them. Thus, it would be important to know if there is any evidence which indicates whether Federal policy should emphasize providing grants to start up new programs or providing grants to existing co-op programs. In conjunction with this we need to know if the IV-D grants have been sufficient to initiate viable co-op programs and even more importantly were they needed at all. Similarly we need to determine what has been the importance and impact of IV-D grants on the older, already operating programs of cooperative education.

Overall, the evidence seems quite clear that the Title IV-D program has had an extremely significant impact on the growth of cooperative education, but minimal impact upon its form and structure. In the previous section we have seen how the structural and operational features, as well as some indications of the programs' success, have been little affected by the receipt of Title IV-D monies. On the other hand, the data to be presented here shows clearly that the IV-D program has been a significant factor in the growth of cooperative education. The manner in which this impact has come about has primarily been through the IV-D program's stimulus to, and support of, new programs of cooperative education. The co-op directors in our sample attached great importance to the contribution of IV-D at all three stages--planning, implementing, and strengthening--as was mentioned in the previous section. However, even greater importance, especially in the earlier stages of development was attributed to the IV-D funding by directors of co-op programs which were initiated with these funds (see Table 4.25 below).

TABLE 4.25: IMPORTANCE OF IV-D FUNDS

	% Rating IV-D Funds as very Important at Various Stages of Development for:	
	Existing Programs	New Programs
PLANNING	56%	96% ($p < .01$)
IMPLEMENTING	70%	96% NS
STRENGTHENING	76%	81% NS

Even more importantly, among the programs which started co-op with IV-D funds, the vast majority (86%) stated that without the Title IV-D grant, the cooperative education program would not have been initiated. Thus, it seems clear that the Federal monies were needed, and that the recent surge in the number of schools offering co-op would not have come about without the Federal involvement in the form of the Title IV-D program. Additionally, virtually all of the co-op directors and the senior academic officials interviewed feel that these programs will be continued after the IV-D funding has ended.

While the impact of IV-D as a start-up mechanism for new co-op programs appears to be its most important effect, it also seems to have had utility in the expansion of existing programs, both in terms of numbers of students and in terms of numbers of areas offered. As rated earlier in this report, the IV-D programs do tend to offer co-op in less traditional areas more often, and according to the co-op directors of schools which had co-op before receiving IV-D funds, about 65 percent (17 out of 26) stated that one impact of the funding was that new co-op program areas were initiated. It appears that this would not have occurred otherwise, since the older IV-D programs do offer co-op in more areas than is the case for the older non-IV-D programs as seen in Table 4.26 below.

TABLE 4.26: NUMBER OF CO-OP PROGRAM AREAS

% of Schools with programs in existence prior to 1973-74 offering co-op in:	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
1 - 2 Areas	22%(4)	53%(8)	0	56%(10)
3 Areas	44%(8)	27%(4)	20%(2)	33%(6)
4 - 5 Areas	33%(6)	20%(3)	80%(8)	11%(2)
	100%	100%	100%	100%

p<.05

Earlier in this chapter, we presented data showing that there were no significant differences in enrollment among the different types of schools. However, these same data also indicate a tendency for greater increases in co-op enrollment at schools with IV-D funding. In the following we shall explore this finding in greater detail.

The following table (4.27) clearly shows that growth in co-op enrollment from 1973-74 to 1975-76, both absolute and on a percentage basis, has been greater at IV-D schools, both 2- and 4-year, than of those without IV-D funds. Also, it should be noted that for all types of schools the percentage increase in co-op enrollment exceeded that for total institutional enrollment. The anomaly of an absolute decline on the average for 4-year non-IV-D schools representing an average percentage increase of about 50 percent is due to a few programs showing a very large absolute decline, but a large number of small programs with small absolute increases that represent extremely large percentage increases.

Also, co-op enrollment may be viewed and analyzed as a proportion of the total institutional enrollment. The following table (4.28) gives the proportion of the 1975-76 total institutional enrollment which is in co-op, the average absolute increase in the proportion from 1973-74 and this increase expressed as a percent of the 1973-74 proportion for the different types of schools. As noted in the table, there is a significant difference between the types in terms of the percentage increase, with IV-D schools and 4-year schools exhibiting larger increases.

However, as was also noted earlier, the IV-D co-op programs are significantly newer than non-IV-D, and therefore might be expected to have more rapid growth rates. For this reason, a series of analyses of variance were produced in order to more carefully explore the relationship between the growth in co-op enrollment (both actual and as a proportion of total enrollment) and other institutional characteristics. In addition to IV-D funding status and 2- vs. 4-year level of school, public versus

TABLE 4.27: CO-OP ENROLLMENT CHANGES 1973-74 TO 1975-76

	Absolute Growth*	Percentage Growth*	Percentage Growth in Total Enrollment**
4-Year IV-D	156.1	182.6%	16.1%
4-Year Non-IV-D	-20.4	52.7%	10.4%
2-Year IV-D	126.4	174.9%	45.0%
2-Year Non-IV-D	30.6	43.3%	23.7%

*Overall differences not significant, but IV-D vs. non-IV-D contrast is significant.

**Overall differences, IV-D vs. non-IV-D and 2 vs. 4-year contrasts significant

TABLE 4.28: CHANGES IN PROPORTION OF TOTAL INSTITUTIONAL ENROLLMENT IN CO-OP, 1973-74 TO 1975-76

	% of School in Co-op	Average Absolute Increase	Average Percentage Increase
4-Year IV-D	13.6%	2.0	147.1
4-Year Non-IV-D	10.1%	0.6	41.8
2-Year IV-D	9.1%	0.9	77.2
2-Year Non-IV-D	7.4%	0.2	13.5
	NS	NS	p .05

private control, and whether or not the school had any funds (other than IV-D) specifically earmarked for co-op were included in this analysis. Basically what was found was that when program age was taken into account, the IV-D funding status, as well as most of the other factors no longer showed any significant correlation with enrollment changes. The one exception was that 4-year institutions experienced a greater increase in the proportion of total enrollment in co-op (especially in terms of the percentage increase) even though the 4-year schools generally have older co-op programs.

One additional way in which the IV-D program could have contributed to the development of co-op is by the encouragement of the development of institutional and other alternative sources of funding for cooperative education. Table 4.29 below shows the average amount of money, not including IV-D funds, that was specifically earmarked for co-op in 1975-76 for various categories of IHEs. While none of the comparisons are statistically significant, there are a number of trends which should be noted. First, 4-year schools tend to have larger amounts of funds specifically for co-op than do 2-year schools. While there is little difference between IV-D and non-IV-D among the older programs, it is interesting that, for the newer programs, none of the non-IV-D have any such funds specifically earmarked for co-op while the new IV-D programs have as much of these types of funds as any of the older programs. However, when we examine the change in the amount of such funds from 1973-74 to 1975-76, we do not find any sharp increase in co-op funds for these IV-D programs (actually, on the average there has been a small decline). Thus it would appear that it is not that IV-D has encouraged the development of alternative sources of funds, but rather that IV-D grants have been awarded to institutions which have already developed additional sources of financial support for their co-op programs.

TABLE 4.29: AVERAGE AMOUNT OF NON-IV-D FUNDS SPECIFICALLY EARMARKED FOR CO-OP BY TYPE OF INSTITUTION

	Average 1976 Dollars			
	4-Year IV-D	4-Year Non-IV-D	2-Year IV-D	2-Year Non-IV-D
Old Programs	$12553(15)	8857(14)	2440(9)	4694(14)
New Programs	13695(5)	0(1)	4508(13)	0(2)
NS				

While the previous sections of this report have indicated that the IV-D program has had only minimal impact on the form and structure of co-op program operation, the data presented here clearly shows that this Federal involvement has had a definite impact on the development of programs of cooperative education in institutions of higher education.

5

ASSESSMENT OF THE ROLE OF COOPERATIVE EDUCATION IN CAREER EDUCATION

In recent years, there has been a call for educational reform at all levels from various and diverse groups including students, teachers, school administrators, parents, out-of-school youth and adults, minorities, the disadvantaged, and the general public. Although the specific concerns varied by each group, all appeared to agree that education in the country is in need of major reform at all levels. In one response to this call for reform, the U.S. Office of Education (USOE) and educators throughout the country have proposed career education as a vehicle for making education more relevant and interesting.

USOE defines career education as:

> "...the totality of experiences through which one learns about and prepares to engage in work as a part of her or his way of living."[1]

This definition is a general one and is purposely intended to be of a very broad and encompassing nature. There have been many other definitions proposed[2] and, in fact, the definition cited above has been developed in an attempt to bring about a unified statement on what career education should be.

The assumptions upon which career education is based are manifold, but they appear to focus on two primary objectives:

1) to provide students with opportunities to explore and prepare for a variety of available careers; and

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[1] U.S. Office of Education. An Introduction to Career Education. Washington: U.S. Government Printing Office, 1975, p. 4.

[2] Kenneth B. Hoyt. "Toward a Definition of Career Education." In J. H. Maginos (ed.) Career Education. Washington: American Vocational Association, 1973, pp. 15-29.

2) to prepare students to cope with the occupational and non-occupational characteristics of our society.

From its infancy, career education has been identified with cooperative education. Many objectives and strategies of each approach overlap (e.g., providing students with skills and knowledge related to specific occupations; providing first-hand exploration of occupations), but the extent of the overlap appears to vary by co-op programs and variables within programs.[1]

In the sections that follow, the relationships between career education and cooperative education are described and analyzed. In addition, the extent to which postsecondary co-op and non-co-op programs satisfy the criteria of career education are compared. Finally, a description of career exploration provided by various discipline areas within co-op programs are presented and discussed.

I. CAREER PREPARATION

Postsecondary education programs, in general, and co-op programs, in particular, tend to consider preparation for entry into an occupation or career as important components of the total educational process.

The importance of career preparation in postsecondary programs is underscored by the responses of senior academic officials, co-op program directors, and co-op and non-co-op faculty and students. As shown in Table 5.1, 86 percent of senior academic officials and 97 percent of co-op program directors rated preparation for specific occupations as a very important reason for support of co-op. This was further emphasized by responses of faculty and students in both the co-op and non-co-op programs. Specific occupational preparation was rated as a very important purpose of co-op education by 87 percent of the co-op faculty and 84 percent of the non-co-op faculty. Among students, the ratings were 78 percent and 67 percent by co-op and non-co-op, respectively.

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[1] Confer, for example, Cohen, A.J., and Frankel, S.M. Data Analysis Report: An Assessment of School-Supervised Work Education Programs. Santa Monica, Calif.: Systems Development Corporation, 1973, for a discussion of the different configurations of career education programs at both the secondary and postsecondary levels.

TABLE 5.1: PURPOSES OF AND REASONS FOR SUPPORTING COOPERATIVE EDUCATION

	% Indicating Area as Very Important					
	Senior Academic Officials (n = 64)	Co-op Directors (n = 64)	Co-op Faculty (n = 221)	Non-Co-op Faculty (n = 206)	Co-op Students (n = 1324)	Non-Co-Op Students (n = 468)
Providing students with preparation for specific occupations	86%	97%	87%	84%	78%	67%
Integrating academic and career development	97%	86%	90%	N/A*	N/A*	N/A*
Providing students with better career awareness	88%	89%	88%	86%	78%	66%
Providing employers with better sources of manpower	55%	59%	61%	49%	54%	46%
Providing students with better social development	41%	65%	53%	43%	55%	46%

*Not asked of these respondent groups

These responses appear to support the importance of providing students with marketable skills and knowledge, and they seem to indicate that this purpose of co-op is generally interpreted in the same way by the substantial majority of respondents.

The career preparation aspect of co-op was additionally stressed by senior academic officials and co-op directors by their rating 97 percent and 86 percent, respectively, the integration of academic and career development as a very important objective of co-op education. Of the co-op faculty queried, 90 percent rated this characteristic as very important. This relation of academic training to career goals and objectives is one of the foundations upon which the concept of career education rests.

It is very interesting to note that all respondents shown in Table 5.1 rated providing students with better career awareness as highly as preparation for specific occupations. It appears that career awareness may be closely linked to career preparation, particularly if the preparation is conducted in real-life situations or contexts. Thus 78 percent of co-op students and 66 percent of students in non-co-op programs felt that co-op education provided students with better career awareness. This is a sizable majority of the students questioned. An even higher percentage of the faculty and administrators rated this aspect as very important, as shown in the same table.

The results presented in Table 5.1 clearly indicate the importance of the roles of career preparation and career awareness in cooperative education. The objectives and purposes of co-op must, however, be translated into results. First, the question arises, "How well does co-op prepare students for job and career entry?" The extent to which co-op graduates are able to secure and perform satisfactorily in occupations related to their training would appear to be one sound indicator of the success of co-op programs in providing their students with occupationally relevant skills and knowledge.

The second important question that arises is concerned with how employers of co-op graduates rate their ability and readiness to perform job tasks in comparison to job incumbents and entering non-co-op trained employees. This question is of critical importance since it has serious positive or negative implications for co-op programs depending on the employer level of satisfaction with the performance of co-op graduates.

Results presented in Table 5.2 show the degree of relatedness of first jobs to college majors for co-op and non-co-op graduates. (The graduates used in this table and in all the analyses in this chapter graduated from college between three and six years prior to the time of this survey.) These data seem to indicate that co-op graduates more frequently enter occupations which are related to their courses of study than their non-co-op counterparts. Only 11.7 percent of the co-op graduates were employed in occupations not at all related to their training, while 26.9 percent of the non-co-op graduates were employed in positions unrelated to their college major.

TABLE 5.2: RELATIONSHIP BETWEEN COLLEGE MAJOR AND FIRST JOB (CO-OP AND NON-CO-OP GRADUATES)

Relationship of Training to First Job	Co-op Graduates	Non-Co-op Graduates
Directly related	58.3% (493)	45.1% (896)
Somewhat related	29.9% (253)	28.0% (557)
Not related	11.7% (99)	26.9% (534)
P<= .01	100% (845)	100% (1987)

For co-op graduates, this relatedness was consistent for all majors except liberal arts. Close to 60 percent of the co-op graduates in each of the other four areas said their first job was directly related, while this was true for only 45 percent of the liberal arts co-op graduates, and in fact 30 percent said it was not at all related. Among engineering and trade and industrial majors, non-co-op graduates were about equally likely as co-op to have a first job that was directly related to their major. For business majors, having been in co-op made it significantly more likely that one's first job would be related to his/her college major. Only 39 percent of the non-co-op graduates as compared to 58 percent of the co-op graduates said this was the case. Even though co-op graduates in liberal arts did not fare as well as those in other majors, they did do significantly better than liberal arts graduates who were not in co-op in finding a first job that was directly related to their major (only 34% of the non-co-op graduates said this happened). Although we have no explanation for it, it is interesting to note that significantly more non-co-op graduates in health found a first job directly related to their major (85%) than did the co-op graduates who majored in the health professions area (61%).

These results appear to indicate that co-op graduates are usually more successful in gaining initial employment in occupations or careers highly related to their training.

As seen in Table 5.3, within each of the five major areas, there is no difference between co-op and non-co-op graduates in terms of the percent currently employed. The rate of employment is lower for graduates from the health and liberal arts areas, and this is the case for both co-op and non-co-op graduates. The lower rates for graduates with these majors is not surprising since they contain higher proportions of females, who are very much less likely to be employed than are males. These rates are not significantly different for graduates out of school for about three years as compared to those who have been out of school for approximately six years. In business and engineering the current positions of co-op graduates tend to be more related to their career plans while in health, although not statistically significant, non-co-op graduates have more related jobs. There is no difference between co-op and non-co-op for trade and industry or liberal arts majors. Again, there is no significant relationship with length of time out of school. The responses of co-op and non-co-op graduates to these two questions are presented in Table 5.3.

There appeared to be no difference between co-op and non-co-op student ratings of the extent to which subjects studied in college will be useful in their careers after college. (62.7 percent or 856 co-op students versus 61.9 percent or 1,375 non-co-op students). There appeared to be differences among students enrolled in different disciplines within the co-op program. Students enrolled in health and trade and industrial programs

TABLE 5:3: PERCENT EMPLOYED AND RELATIONSHIP OF CURRENT OCCUPATION TO CAREER PLANS (CO-OP AND NON-CO-OP GRADUATES)

	Business		Engineering		Health		Trade and Industrial		Liberal Arts		Total	
	Co-op	Non-Co-op	Co-op	Non-Co-op	Co-op	Non-Co-op	Co-op	Non-Co-op	Co-op	Non-Co-op	Co-op	Non-Co-op
Percent currently employed	92.9%	89.9%	97.1%	92.5%	83.3%	86.3%	94.1%	96.7%	81.7%	80.9%	93.9%(819)	87.4%(1860)*
Relationship of current occupation to career plans												
Directly related	61.4	49.3	65.0	56.0	53.3	79.6	62.5	69.7	53.0	55.2	62.7(510)	56.2(1038)
Somewhat related	29.7	37.9	30.4	37.0	33.3	12.6	31.3	16.9	27.3	25.4	29.9(243)	30.1(557)
Little relationship or not related	8.8	12.8 *	4.6	7.0	13.3	7.8 *	6.3	13.5	19.7	19.4	7.5(61)	13.7(253)*

*P<.01

were most likely to feel what they were studying would be useful after college (77.6 percent and 73.6 percent, respectively), while only 56.0 percent of the engineering/architecture students rated college preparation as very useful to career plans after college. The complete distributions of responses are presented in Tables 5.4 and 5.5. Actually, however, these differences were related to the level of the school attended. Students in 2-year schools, where most health and trade and industrial programs are located, were more positive about the potential usefulness of what they were studying. Similarly, an apparent difference by sex, with a higher proportion of females feeling what they studied would be very useful, was due to the higher proportion of females in 2-year schools. Regardless of discipline or sex, students in 2-year schools were significantly more likely to feel what they were studying would be very useful for their careers. There were no differences in terms of the other characteristics analyzed such as ethnicity and parental income. Also, even taking into account the level of school, there was still no difference between co-op and non-co-op students. These data seem to indicate that it may be the work-experience component of co-op which accounts for much of the difference in occupational and career preparation between co-op and non-co-op students in general.

The relationship between job preparation provided by co-op training and work performed on the job appears to vary considerably between discipline areas. As may be expected, the majority of co-op graduates from the health areas stated that their preparation was most highly related to their current occupations, while only 25.3 percent of the graduates from liberal arts believed their training to be highly related to their work. The remainder of co-op graduates, those in business, engineering/architecture, and trade and industrial programs rated their training as highly relevant to their jobs by 48.1 percent, 41.3 percent, and 52.9 percent, respectively. Overall, 42.8 percent of the co-op graduates felt that their training was highly

TABLE 5.4: EXTENT TO WHICH SUBJECTS STUDIED NOW WILL BE USEFUL FOR CAREER AFTER COLLEGE AS RATED BY CO-OP AND NON-CO-OP STUDENTS

	Co-op	Non-Co-op
Very useful	63.1% (982)	62.1% (1419)
Somewhat useful	33.6 (523)	34.5% (789)
Very little or not at all useful	3.3% (52)	3.4% (77)
NS	100%	100%

TABLE 5.5: EXTENT TO WHICH THINGS STUDIED NOW WILL BE USEFUL FOR CAREER AFTER COLLEGE AS RATED BY CO-OP STUDENTS BY DIFFERENT PROGRAM AREAS

	Business	Engineering/ Architecture	Health	Trade & Industry	Liberal Arts
Very useful	66.6% (391)	56.0% (224)	77.6% (52)	73.6% (81)	59.6% (201)
Somewhat useful	30.8% (181)	39.3% (157)	17.9% (12)	24.5% (27)	36.8% (124)
Very little or not at all useful	2.6% (15)	4.8% (19)	4.5% (3)	1.8% (2)	3.6% (12)
	100%	100%	100%	100%	100%

P<.01

related to their jobs, while for students, level of school was the relevant factor. In the case of these graduates it appears that both level of school and major area play a role. For business graduates, level of school had no impact, whereas liberal arts graduates felt their co-op training was more related to their current occupation if they graduated from a 2-year school. Table 5.6 presents the complete responses of co-op graduates by discipline area.

TABLE 5.6: CO-OP GRADUATES' RATING OF RELATIONSHIP OF CO-OP PREPARATION TO CURRENT OCCUPATION
(By Program Area)

Relationship of Preparation to Current Occupation	Business	Engineering/ Architecture	Health	Trade & Industrial	Liberal Arts	Total
High	48.1% (124)	41.7% (185)	62.5% (10)	52.9% (9)	25.3% (19)	42.8% (347)
Moderate	32.2% (83)	39.2% (174)	18.8% (3)	41.2% (7)	40.0% (30)	36.7% (297)
Low or None	19.8% (51)	19.1% (85)	18.8% (3)	5.9% (1)	34.7% (26)	20.5% (166)

It is interesting to compare the rating by co-op graduates of the relatedness of their co-op training to their current job with the students expectations of the usefulness of their training in the five discipline areas. There are substantially lower proportions of co-op graduates who feel their training was highly related as compared with students who expect their training will be very useful to their careers. The most sizeable difference was for graduates of liberal arts programs. There may be several explanations for these declines. Among these are:

1) Employment secured by graduates may not be highly related to co-op preparation. (This is certainly true of liberal arts graduates.)

2) Although graduates may be employed in highly related occupations, the nature of the tasks performed may be substantially unrelated to training due to technological change, employer policy, etc.

3) The preparation level required by entry and/or current occupation may not reflect level of training provided.

When asked to rank the features of co-op education they felt to be most important, 38.7 percent of co-op graduates ranked their co-op work experience which provided them with exposure to the general world of work as most important, and 28.9 percent ranked the development of useful skills as most important. These, and two other features (co-op earnings and academic training), were rank-ordered according to importance and are presented in Table 5.7.

TABLE 5.7: CURRENT EVALUATION OF IMPORTANCE OF CO-OP FEATURES TO CO-OP GRADUATES

Percent of Graduates Ranking Feature as:		Co-op Feature:			
		Co-op Earnings	Skill Development	Exposure to World of Work	Academic Training
Most Important	1	26.1% (217)	28.9% (240)	38.7% (321)	7.0% (58)
	2	21.7% (180)	28.6% (237)	34.7% (288)	14.7% (122)
	3	22.3% (185)	27.1% (225)	18.6% (154)	32.2% (288)
Least Important	4	29.9% (248)	15.4% (128)	8.1% (67)	46.2% (384)
		100%	100%	100%	100%

The relative importance of some of these components varied significantly by the graduates major. As seen in Table 5.8, the financial aid aspect was most important for liberal arts graduates.

TABLE 5.8: CURRENT EVALUATION OF IMPORTANCE OF CO-OP FEATURES TO CO-OP GRADUATES BY PROGRAM AREA

	% Ranking Feature as Most Important				
	Business	Engineering	Health	Trade & Industry	Liberal Arts
Co-op Earnings	19.3%	29.4%	6.3%	5.9%	38.0%*
Skill Development	35.1	24.5	44.4	52.9	18.9 *
Exposure to World of Work	34.8	43.7	27.8	41.2	33.8 NS
Academic Training	11.1	3.2	22.2	0.0	13.5 *

* $p < .01$

On the other hand skill development was most important among health and trade and industry graduates. Exposure to the world of work was quite important across all areas, while academic training was consistently of less importance, although significantly lower in engineering and trade and industry than for graduates of the other three major areas. As expected, fewer liberal arts graduates than any other group in the sample ranked skill development as most important. In any case, with the exception of liberal arts graduates, more than half of the graduates indicated that development of useful skills was a most important or next most important outcome of their participation in co-op.

It can be hypothesized that the narrower the career area, the better the skill preparation for occupations representing that career. In addition, the more defined the career area (by legal statute, strict entry requirements, etc.), the more related the skill preparation provided. A salient example is the health area. Health occupations are strictly controlled by law with respect to the training, and other requirements are so specifically defined that a majority of preparatory programs must be relevant to be certified. The area of liberal arts, on the other hand, is so amorphous that it is difficult to relate instruction to specific career goals.

Although liberal arts may be less well developed in this area, there appears to be a general trend in the responses obtained from co-op graduates and others involved in co-op education: co-op has been able to provide many of its graduates with occupational or career-related skills and knowledge.

Co-op's ability to provide career-related skills also appears to motivate participation in co-op. As indicated in Table 5.9, 83.3 percent of co-op health program graduates indicated that acquiring skills and experience related to career objectives was a very important reason for entering the co-op programs. Only 55.1 percent of the liberal arts graduates responded in a like manner, although the overall percentage was 68.5 percent.

TABLE 5.9: IMPORTANCE OF ACQUISITION OF SKILLS AND EXPERIENCE RELATED TO CAREER OBJECTIVES AS REASON FOR ENTERING CO-OP BY PROGRAM AREA OF GRADUATE

Program Area	Percent of Graduates Rating Acquisition of Skills and Experience as Very Important Reason for Entering Co-op
Business	72.1% (189)
Engineering/ Architecture	67.7% (298)
Health	83.3% (18)
Trade & Industrial	76.5% (13)
Liberal Arts	55.1% (43)
Total	overall - 68.5% (558)

These results are further supported by the responses of co-op employers. A majority in this respondent category indicated that co-op students progress faster on the job than regular employees and are more productive. Specifically, 121 or 70.3 percent of the co-op employers stated that co-op students progress faster than regular employees and 103 or 60.9 percent stated that they are more productive than regular employees. Complete responses on these two characteristics are shown in Tables 5.10 and 5.11.

Thus it appears that there is no question regarding co-op education's success in skill and knowledge preparation. Although improvements can be made in this area, especially in liberal arts, it seems that occupational and career preparation is one of the distinct strengths of co-op. How well co-op meets other goals and assumptions of career education is discussed in the sections that follow.

TABLE 5.10: PROGRESS ON THE JOB (Co-op Employer Response)

Co-op students' progress as compared with regular employees.	
Faster	- 70.3% (n=121)
Slower	- 1.7% (n=3)
About the same	- 27.9% (n=48)

TABLE 5.11: PRODUCTIVITY (Co-op Employer Response)

Co-op student productivity as compared to regular employees.	
More Productive	- 60.9% (n=103)
Less Productive	- 1.8% (n=3)
About the same	- 37.3% (n=63)

II. CAREER GUIDANCE AND COUNSELING

An important aspect of career education is career guidance and counseling. Relevant information is seldom available to young job seekers because of the slow growth of labor market research and the traditional approaches of government agencies that produce the bulk of available occupational information.[1]

Difficulties in revising the curriculum to include the occupational orientation believed to be required and desired by many students has led a growing number of educators and guidance counselors to the idea of work experience as a developmental opportunity for young people.[2]

The typical co-op student receives approximately six hours of career counseling per year, while his non-co-op counterpart receives about three hours. There was an extremely wide range in the responses to this question indicating considerable variability among individual schools in the amount of counseling provided to students. Table 5.12 shows more detailed descriptive data regarding the amount of time devoted to counseling in co-op programs.

Table 5.13 shows a breakdown of the counseling services provided to co-op students. These are evenly divided among general career counseling, work experience counseling, academic, and personal counseling. It is interesting to note that only 65 percent of co-op directors indicated that the school's counseling staffs were involved in counseling co-op students. In fact, faculty were involved in counseling as much as, if not more than, the counseling staff. Most of the co-op directors (84%) were personally involved in the provision of counseling. Identification of staff who provide counseling to students is presented in Table 5.14.

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[1] Eli Ginsberg, Career Guidance: Who Needs It, Who Provides It, Who Can Improve It. New York: McGraw-Hill, 1971.

[2] Ibid., p. 199.

TABLE 5.12: AMOUNT OF COUNSELING RECEIVED IN HOURS PER YEAR (Co-op and Non-co-op Students)

	Co-op	Non-co-op
Mean	13	7
Median	6	3
Range	0-100	0-434

TABLE 5.13: COUNSELING SERVICES PROVIDED TO CO-OP STUDENTS

Type of Counseling	% Co-op Directors Indicating "Yes" (n=64)
General Career	83%
Work Experience	84
Academic	84
Personal	83
Other	3

TABLE 5.14: CO-OP STAFF WHO PROVIDE COUNSELING TO CO-OP STUDENTS

Staff Title	% Co-Op Directors Indicating Staff as Providing Counseling (n=64)
Co-op Director	84%
Faculty	68
Counseling Staff	65
Placement Office	41
Other	10

While it may appear unusual that counselors are not responsible for the bulk of counseling activities, there appears to be several reasons why this takes place. First, counselors are frequently required to perform other activities such as maintaining student records and student placement. Second, co-op faculty may be providing counseling as much as, if not more than, counsel ors simply because they have more frequent contact with students and, in general, are better prepared to provide academic and work experience counseling due to their close contacts with employers. Third, co-op program directors may be heavily involved in counseling because of their extensive experience and because thay may invite the counseling responsibility as a method for maintaining contact with students and identifying problem areas in their programs. Finally, as is the case in many other programs, the counseling component may not be well-developed. The resources which are devoted to counseling may be limited for a variety of reasons ranging from the philosophy under which the program operates to shortage of funds. It is, therefore, difficult to interpret the implications of these responses.

The quality of counseling provided was rated by the individuals directly involved in co-op programs. Counseling in choosing a major was rated as good or excellent by 56 percent of the co-op program directors, 41 percent of the co-op faculty, and 35 percent of the non-co-op faculty. Of course, it should be remembered that the co-op directors are personally providing the counseling most often. The responses relevant to this feature of co-op are presented in Table 5.15.

Student response to quality of counseling in choosing a major was somewhat less enthusiastic than that of faculty and co-op program directors. Only 31 percent and 30 percent of co-op and non-co-op students respectively felt that counseling in this area was above average. A significantly larger percentage of students than faculty or co-op program directors felt that guidance in choosing

TABLE 5.15: QUALITY OF COUNSELING IN CHOOSING A MAJOR

Respondents	Rating by Percent				
	Poor 1	2	Average 3	4	Excellent 5
Co-op Directors (n=64)	2%	8%	34%	40%	16%
Co-op Faculty (n=148)	6	17	37	27	14
Non-Co-op Faculty (n=188)	6	15	43	26	9
Students-(co-op)(n=1344)	12	19	37	23	8
Students-(non-co-op)(n=2159)	13	21	36	21	9

a program major was below average. The rating of this aspect of their institution was especially low for co-op engineering students (only 25% rated it above average) while co-op students enrolled in liberal arts were somewhat more positive about this type of institutional counseling (36% rated it as being above average).

While faculty and co-op program directors in general agree about the quality of guidance (i.e., that it is average or above), students tend to think that for the most part it is average or below average.

Because of the variety of counseling approaches which may be used in a given setting, it is not possible to identify (with the data on hand) the specific strengths and weaknesses of the counseling provided. It suffices to say that students are generally not entirely satisfied with its quality and some steps must be taken to correct the state of affairs.

In the area of guidance in career planning provided by institutions, the responses of both co-op and non-co-op students are somewhat more positive. Approximately 40 percent of the co-op students and 34 percent of non-co-op students felt that their institution provided above average counseling in career planning. Counseling in career planning provided by co-op programs was rated above average by 39 percent of co-op students. The complete ratings are provided in Table 5.16.

It appears that career counseling provided by the co-op program is rated approximately the same by co-op students in all discipline areas except engineering/architecture. The co-op students in this area ranked the quality of guidance in career counseling as above average less frequently than did students from other areas. Thus only 28.1 percent of the engineering students ranked it as good or excellent, while the rest rated it good or excellent with a frequency of from 41.1 percent to 46.0 percent. Ratings by co-op students enrolled in the five discipline areas are given in Table 5.17. A similar pattern exists in the ratings of career counseling provided by the institution. Engineering students, both co-op and non-co-op, tend to rate counseling in career planning lower than students in the other four areas.

These results seem to indicate that there is a need to strengthen the guidance component of co-op education to bring it up to the level of effectiveness of skill and knowledge development. The difficulty lies in identifying how this may be accomplished. Career counseling is seldom seen as excellent, and it is frequently judged only to be average. Specific counseling strategies are fraught with specific shortcomings. Thus the trait-factor approach explains little about vocational behavior, relying more on description than explanation.[1] Until relationships between the individual and his/her career choice and pursuit are more clearly established, it may be difficult to improve counseling.

III. ASSESSMENT OF STUDENT CHARACTERISTICS

The assessment of student career objectives, interests, capabilities, and other personal characteristics is an important

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[1] Samuel H. Osipow, Theories of Career Development. Englewood Cliffs, New Jersey: Prentice-Hall, 1968.

TABLE 5.16: STUDENTS' RATINGS OF QUALITY OF COUNSELING IN CAREER PLANNING

	Rating by Percent				
	Poor 1	2	Average 3	4	Excellent 5
Institutional Counseling					
Co-op Students	10%	16%	34%	27%	13%
Non-Co-op Students	12	19	36	24	10
Co-op Program Counseling					
Co-op Students	8	14	39	25	14

TABLE 5.17: COUNSELING IN CAREER PLANNING AS RATED BY CO-OP STUDENTS BY DIFFERENT PROGRAM AREAS

		BUSINESS	ENGINEERING/ ARCHITECTURE	HEALTH	TRADE AND INDUSTRY	LIBERAL ARTS
Excellent	1	17.1% (87)	9.1% (31)	10.4% (6)	12.2% (11)	15.9% (47)
	2	25.0% (127)	19.0% (65)	35.6% (21)	28.9% (26)	25.4% (75)
Average	3	37.8% (192)	41.8% (143)	37.3% (22)	38.9% (35)	39.7% (117)
	4	12.8% (65)	17.0% (58)	13.6% (8)	14.4% (13)	13.6% (40)
Poor	5	7.3% (37)	13.2% (45)	3.4% (2)	5.6% (5)	5.4% (16)

$P < .01$

component of career education. For effective career counseling to take place, those providing it must have information regarding each student's strengths and weaknesses, goals, interests, and other personal characteristics. This is not to say that counselors need this information to match individual students with specific occupations or careers. Rather, the information is needed to tailor the selection and pursuit of career objectives to the aspirations, needs, and capabilities of each student.

It is not only the counselor who needs this information. Each student must be able to assess his/her own capabilities, interests and goals to make sound, realistic career decisions. While counselors can assist students in career choice and preparation, the final decision rests with the individual student. Thus, in the final analysis it is the student who requires accurate personal information and decision-making skills for making career decisions.

As was the case with career counseling, the assessment of individual student characteristics received a good deal less attention than skill preparation. Thus, in rating the institutions, the respondents identified in Table 5.18 rated testing to ascertain abilities and interests as above average or excellent least frequently. Co-op faculty rated this characteristic of the institutions of higher education as above average or excellent most frequently (31%), while the rest of the respondents (non-co-op faculty, co-op, and non-co-op students) rated it even lower, with a frequency of approximately 25 percent.

TABLE 5.18: RATING OF EFFECTIVENESS OF ACTIVITIES OF THE INSTITUTION OF HIGHER EDUCATION
(% Rating as Above Average or Excellent)

	Co-op Faculty	Non-Co-op Faculty	Co-op Student	Non-Co-op Student
Job skills improvement of students by end of program	76	65	55	38
Testing to ascertain abilities and interest	31	26	27	26
Counseling in choosing a major	40	35	31	30
Placement of students after graduation	59	47	41	26
Quality of instruction at college	80	80	64	58

Inadequate assessment of student characteristics may be the first weak link in the counseling and placement chain. Accurate self-knowledge, for example, is a major factor in vocational maturity in late adolescence.[1] Further, the majority of direct benefits of career education can be classified as information processing, planning, and execution. Information processing can be defined as gathering, knowing and accepting data about one's self and existing opportunities, personal requirements, and changing societal expectations.[2] This information is not static (goals and interest change; outside influences and social influences modify plans and objectives) and must be continuously reassessed to validate career development decisions and ensure future career satisfaction.

Clearly if the counseling component of co-op education is to be improved, the assessment of students' personal characteristics will have to be strengthened. This does not necessarily mean that co-op programs must administer test batteries to every student or that other intensive means of assessment must be emphasized. Rather, guidance counselors and other co-op staff involved in assisting students in making career choices and preparing for careers must obtain sufficient information about each student served to provide him/her with more effective career counseling.

IV. PLACEMENT OF GRADUATES INTO RELATED OCCUPATIONS OR CAREERS

Ultimately, the effectiveness of any program of career education is gauged by the extent to which it is successful in placing graduates into occupations for which they have been trained and in which they voluntarily remain. A program may be highly successful in preparing students for occupations for which there is little current demand (e.g., college teaching), thereby forcing highly trained graduates to seek alternative sources of employment.

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[1] Charles Healy, Career Counseling in the Community College. Springfield, Illinois: Charles C. Thomas, 1973.

[2] Ibid, p. 76.

Students may make unsound career choices based on faulty personal and career information, only to leave this occupation after a short incumbency.

Thus, effective placement involves a number of factors, including relatedness of occupations or careers to training, geographical location, opportunities for personal development and advancement, sufficient financial remuneration, acceptable working conditions, and a host of others. Limitations on individual placement may and do vary and thus the effectiveness of placement is difficult to assess. As an example, during the periods of high unemployment, employers are in the so-called "buyer's market." That is, they may be able to hire or select the best graduates at salaries equal to those usually paid to less desirable graduates during periods of relatively low unemployment. In addition, job turnover is usually lower in periods of economic slowdown, thus providing little opportunity for both vertical and horizontal mobility. Under these conditions, it may be difficult to place a graduate in a related or desirable position, no matter how effective the placement program may be.

It appears, however, that general assessments can be made on the basis of the satisfaction of graduates of co-op versus non-co-op programs and the relatedness of the occupation to training.

Thus, of 845 co-op graduates responding, 493 or 58.3 percent indicated that their first jobs were directly related to their college major. Non-co-op graduates felt that their first jobs were directly related to the training they received at a rate of 45.1 percent. Only 11.7 percent of the co-op graduates stated that their first jobs were not related to their college preparation, while, proportionally, more than twice as many non-co-op graduates (26.9%) felt that their first jobs were not related to their education, as seen in Table 5.19.

TABLE 5.19: RELATEDNESS OF FIRST JOB TO COLLEGE MAJOR
(Co-op and Non-Co-op Graduates)

Degree of Relatedness of First Job to College Major	Co-op Graduates (n=845)	Non-Co-Op Graduates (n = 1987)
Directly Related	58.3% (493)	45.1%* (896)
Somewhat Related	29.9% (253)	28.0% (557)
Not Related	11.7% (99)	26.9% (534)

* $P < .01$

The degree of satisfaction with current occupations can be viewed as another indicator of effective placement. In comparing co-op and non-co-op graduates there appeared to be a small but significant difference between the two groups in degrees of satisfaction with their current jobs. Slightly over one-half (52%) of co-op graduates and 48 percent of non-co-op graduates stated that they were highly satisfied with their current occupations. These and the remaining responses are presented in Table 5.20. The edge in job satisfaction held by the co-op graduate existed only for graduates of business and engineering. (It was statistically significant only for business, but the same pattern appeared for engineering graduates.) In the other three areas, non-co-op were at least equally satisfied with their current jobs as co-op graduates. Graduates from the health area, both co-op and non-co-op were more satisfied with their current job than those from any of the other four major areas. Co-op appears to have aided minority graduates in being able to obtain more satisfying jobs than they would have otherwise. While not statistically significant, minority graduates who had been in co-op are more often highly satisfied with their jobs

TABLE 5.20: SATISFACTION WITH CURRENT OCCUPATION
(Co-op and Non-Co-op Graduates)

Degree of Satisfaction	Co-op Graduates (n=830)	Non-Co-Op Graduates (n=1869)
Highly Satisfied	52% (434)	48%* (898)
Somewhat Satisfied	37% (305)	37% (686)
Somewhat or Highly Dissatisfied	11% (91)	15% (285)

* $P < .01$

than non-co-op, and are highly satisfied about equally often as non-minority graduates, either co-op or non-co-op (see Table 5.21 below).

TABLE 5.21: SATISFACTION WITH CURRENT JOB FOR MINORITY AND NON-MINORITY GRADUATES

	% Highly Satisfied	
	Co-op	Non-Co-op
Minority	46.3%	31.3%
Non-minority	51.8%	49.3%

Males and females were each about equally satisfied with their current jobs and the co-op versus non-co-op pattern seen overall remained the same in each sex. Also the length of time out of school had no effect on this variable or its relationship to co-op.

This difference in the degree of job satisfaction can be explained, in part, by descriptions of current jobs held by co-op and non-co-op graduates. Thus, when asked if they are working on a more difficult job now than when first hired, 61.5 percent of 812 co-op graduates and 46.8 percent of the non-co-op graduates replied in the affirmative. Co-op graduates were more likely to have many different assignments on the job than non-co-op graduates (52.4% for co-op; 42.6% for non-co-op). In addition co-op graduates tend to learn something new on the job more frequently than non-co-op graduates; 43.7 versus 40.7 percent respectively. Finally, 39.2 percent of the co-op graduates stated that their supervisors solicited their opinions about work related matters. Only 29.1 percent of the non-co-op graduates stated that their supervisor always asked for their opinions. Table 5.22 shows responses of both groups to these and other questions.

The first item on this table, the degree of difficulty of the job now as compared to when the graduate was first hired may be related to the length of time the job has been held. However, since there is no significant difference between co-op and non-co-op in terms of length of time in current job, this would not explain the difference between co-op and non-co-op graduates on this item. Nevertheless, it is interesting to note a very different pattern of progress in terms of job difficulty between co-op and non-co-op graduates. For co-op graduates, length of time on job is not correlated with the response to this item; i.e., even those co-op graduates who have been on their current job only a short period of time are very likely to have been given tasks of increasing difficulty. On the other hand, for non-co-op graduates time is significantly related to increases in job difficulty. While co-op graduates maintain their advantage throughout, the difference weakens considerably over time and, as seen in Table 5.23, is no longer statistically significant after one to two years on the job. However, in the early period on the job co-op graduates more often obtain jobs which allow for much more rapid progress in terms of increases in job difficulty than do non-co-op graduates.

This pattern of responses regarding current employment helps to explain some of the differences in the degree of satisfaction

TABLE 5.22: DESCRIPTION OF CURRENT JOB BY CO-OP AND NON-CO-OP GRADUATES

(% of Graduates Indicating the Following Always Applied to Their Jobs)

	Co-op	Non-Co-op
Are you doing a more difficult job now than when you were first hired?	61.5% (499)	46.8% (855)**
Have you had many different assignments on this job?	52.4% (420)	42.6% (779)**
Do you learn something new most days on your job?	43.7% (355)	40.7% (750)NS
Does your boss often ask your opinion about work-related matters?	39.2% (316)	29.1% (530)**
Do you decide how things are done in your job?	28.9% (234)	25.8% (475)**
Does your job get you interested enough in things to try to learn about them after work?	24.2% (194)	21.3% (387)NS
Do they have to find a replacement for you when you are absent?	23.9% (191)	31.8% (577)**
Do you do things off the job with the people you work with?	10.7% (87)	10.3% (190)NS
Do you get paid less than other workers who do the same job?	9.0% (70)	10.1% (181)NS
Can you do your job without thinking?	3.3% (27)	5.0% (91) NS

** = $P < .01$

NS = Not Significant

TABLE 5.23 : INCREASE IN JOB DIFFICULTY BY LENGTH OF TIME ON CURRENT JOB FOR CO-OP AND NON-CO-OP GRADUATES

% Indicating They are Now Doing More Difficult Job Than When First Hired			
Length of Time on Present Job	Co-Op Graduate	Non-Co-op Graduate	
6 months or less	67%	36%	**
7 months to 1 year	74%	52%	*
13 months to 2 years	60%	53%	NS
Over 2 years	70%	58%	NS

*$p < .05$ - **$p < .01$

with one's career. A factor frequently identified as being a major source of job dissatisfaction is the performance of simplified, fragmented, compartmentalized, and closely supervised tasks.[1] This is particularly important in the case of highly-trained workers. Another source of dissatisfaction is the feeling on the part of the worker that he/she is in a "dead-end" job as a result of lacking the skills needed for advancement, and as a result of feeling that, no options are available. Data from Table 5.22 and other sources seem to indicate that co-op graduates are more frequently employed in occupations in which these and other factors detrimental to job satisfaction are less likely to exist than are non-co-op graduates.

For co-op graduates there were differences among program areas in the degree of relationship of their current occupations to the training they received. This was due, in part to the program areas in which graduates were enrolled.

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[1] *Work in America*. Report of a Special Task Force to the Secretary of Health, Education, and Welfare. Cambridge, Mass.: The MIT Press, 1973.

As expected, the majority (62.5%) of co-op graduates from the health disciplines stated that their preparation was highly related to their current jobs. Students enrolled in liberal arts programs were least likely to be employed in occupations related to their training (25.3%). Responses of graduates from the remaining discipline areas fell between these two extremes and are shown in Table 5.24.

TABLE 5.24: CO-OP GRADUATES RATING OF RELATIONSHIP OF CO-OP PREPARATION TO CURRENT OCCUPATION BY PROGRAM AREA

Relationship of Preparation to Current Occupation	Business	Engineering/ Architecture	Health	Trade & Industrial	Liberal Arts	Total
High	48.1% (124)	41.7% (185)	62.5% (10)	52.9% (9)	25.3% (19)	42.8% (347)
Moderate	32.2% (83)	39.2% (174)	18.8% (3)	41.2% (7)	40.0% (30)	36.7% (297)
Low or None	19.8% (51)	19.1% (85)	18.8% (3)	5.9% (1)	34.7% (26)	20.5% (166)

In any case, the fact still remains that only 52 percent of co-op graduates are highly satisfied with their current occupations. While this is a higher percentage than for non-co-op graduates, it is no cause for comfort nor complacency. It is not a very high percentage given the efforts expended for training, co-op salaries, and counseling. Also, when asked about the effects of participation in co-op on ability of graduates to obtain their current jobs, only 26.0 percent of the graduates expressed the opinion that co-op shortened the time it took them to find a job after graduation compared to fellow students not in co-op. Many of these may be working for one of their co-op employers, as 28.9 percent of the graduates secured employment with their co-op sponsor. See Table 5.25 for a complete presentation of responses on the effects of participating in co-op.

TABLE 5.25: THE EFFECT OF PARTICIPATION IN A CO-OP PROGRAM ON ABILITY OF GRADUATE TO OBTAIN CURRENT JOB

(% of Co-op Graduates Indicating the Following Reasons*:)

Helped me to obtain a better-paying job	40.7% (355)
Helped me to find a career to my liking	39.7% (346)
Currently working for one of my co-op employees	28.9% (252)
Shortened the time it took to find a job after graduation compared to fellow students not in co-op	26.0% (227)
Not helpful as far as I can tell	22.4% (195)
Not currently working	5.0% (44)

*Percents total more than 100 since graduates could indicate more than one effect.

The data presented provide some evidence which indicates the need to strengthen the placement component if co-op is to play a stronger role in career education and development. It is not enough to match students with educational major areas and to provide them with specific occupational preparation. Students must be aided in their transition from training to work. At the present time co-op is doing a fairly good job in this area. There is no reason why it cannot do much better.

V. SUMMARY

In the previous sections of this chapter, the role of cooperative education in career education was presented and discussed. First, it was pointed out that co-op's strength lay in the career preparation area of career education. Co-op has been highly successful in providing its students with skills and knowledge required for entry into specific occupations and careers. Co-op graduates, in general, felt that college education had provided them with useful skills especially related to their career goals. Specifically, 398 out of 821 co-op graduates or 48.5 percent identified the development of career-related skills as a very important feature of their college education. This was slightly, but significantly higher, than the response of non-co-op graduates. See Table 5.26 for a more detailed presentation of the responses.

TABLE 5.26: FEATURES OF COLLEGE EDUCATION WHICH GRADUATES FELT WERE MOST IMPORTANT

% of Graduates Ranking Area as First in Importance:[1]	Co-op Graduates	Non-Co-op Graduates
College enabled me to develop useful skills especially related to my career goals	48.5% (398)	44.9% (868)*
College Provides a valuable general academic education	29.9% (239)	49.5% (979)**
College education provided valuable exposure to world of work	26.7% (215)	13.2% (246)**

[1] Percents total more than 100 since some graduates rated more than one area as first in importance

** = P .01
* = P .05

Data in Table 5.26 appear to support the general contention that co-op is superior to non-co-op in preparation of students for the world of work. In addition, 55.6 percent of students currently enrolled in co-op programs rated improvement in job skills by the end of the programs as at least above average, while only 38.3 percent of the non-co-op students made the same statement (see Table 5.27). Although skill improvement was rated highly by all students, those enrolled in health programs appeared to rate improvement most highly while those in liberal arts gave the lowest rating to skill improvement as indicated in Table 5.28.

TABLE 5.27: JOB SKILLS IMPROVEMENT BY END OF COLLEGE PROGRAM AS RATED BY CO-OP AND NON-CO-OP STUDENTS

		Co-op Students	Non-Co-op Students
Excellent	1	17.7% (235)	9.9% (212)
	2	37.9% (511)	28.4% (609)
Average	3	35.6% (480)	46.0% (988)
	4	7.0% (95)	10.7% (229)
Poor	5	2.0% (27)	5.0% (108)
		100.0%	100.0%
$P < .01$			

TABLE 5.28: JOB SKILLS IMPROVEMENT BY END OF PROGRAM AS RATED BY CO-OP STUDENTS BY DIFFERENT PROGRAM AREAS

		BUSINESS	ENGINEERING/ ARCHITECTURE	HEALTH	TRADE AND INDUSTRY	LIBERAL ARTS
Excellent	1	15.1% (88)	18.7% (74)	30.2% (19)	23.1% (25)	16.4% (54)
	2	42.1% (246)	37.2% (147)	38.1% (24)	38.0% (41)	32.7% (108)
Average	3	36.1% (211)	34.4% (136)	27.0% (17)	30.6% (33)	38.5% (127)
	4	5.1% (30)	7.8% (31)	1.6% (1)	7.4% (8)	10.0% (33)
Poor	5	1.5% (9)	1.8% (7)	3.2% (2)	0.9% (1)	2.4% (8)
		100.0%	100.0%	100.0%	100.0%	100.0%
$P < .05$						

The superiority of co-op in preparing students for careers makes it attractive to both students and employers. There is room for improvement, however, especially in liberal arts. Improving the level of skill preparation of liberal arts enrollees would make co-op an even more effective career preparation program than it already is. Improvement of occupational and career preparation cannot be realized separately from the testing for career interests. career guidance, and placement. Thus, co-op education must be viewed as a system made up of a number of individual components which serve to fulfill its career education functions.

The assessment of individual student characteristics is one component of this system. This assessment must be carried out at periodic intervals to ensure that each student's goals are being met. Interests change, new skills are developed, new goals are formulated. To be responsive to these changes, co-op education must be sensitive to them, and this requires a constant monitoring of individual students by faculty, counselors, program directors, and students themselves. Students must be provided continuous information about themselves and with methods for collecting this information for themselves. This is a part of an ongoing process in which all concerned must participate if effective career preparation and career counseling is to occur.

The career counseling component appears to be a somewhat weak link in the system. As indicated in a previous section, the majority of co-op students rated it either average or below average. This may be due, in part, to the fact that a majority of co-op students (60.6%) have chosen a specific occupation or career for which they want to be prepared. Only about one-half of the non-co-op students have made this choice (see Table 5.29). The breakdown of specificity of career goals indicated by co-op students enrolled in the five discipline areas is shown in Table 5.30.

TABLE 5.29: SPECIFICITY OF CAREER GOALS AS INDICATED BY CO-OP AND NON-CO-OP STUDENTS

	Co-op Student	Non-Co-op Student
Chosen a specific occupation	60.6% (827)	51.0% (1129)
Chosen a general area of interest	35.8% (489)	40.8% (903)
Not made any career choice	3.6% (49)	8.1% (180)
P < .01		

TABLE 5.30: SPECIFICITY OF CAREER GOALS AS INDICATED BY CO-OP STUDENTS IN DIFFERENT DISCIPLINE AREAS

	BUSINESS	ENGINEERING/ ARCHITECTURE	HEALTH	TRADE AND INDUSTRY	LIBERAL ARTS
Chosen a specific occupation	57.8% (339)	62.0% (248)	79.1% (53)	63.6% (70)	56.0% (188)
Chosen a general area of interest	37.5% (220)	35.5% (142)	20.9% (14)	29.1% (32)	41.1% (138)
Not made any career choice	4.8% (28)	2.5% (10)	0 (0)	7.3% (8)	3.0% (10)
P < .01					

In summary, it appears that cooperative education can and does play an important role in career education. What it appears to lack, to at least some degree at the present time, is the integration of all its components (e.g., training, counseling, placement, etc.) into one comprehensive system in which these components interact to produce satisfactory career decisions for nearly all participants. When this integration comes about, cooperative education will become a more important and effective form of a career education system.